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THE MAGAZINE FOR SCIENCE AND REASON

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Skeptical Inquirer November/December 2019 | Vol. 43, No. 6

FEATURES

34
Nine Evidence-Based Guidelines for a 'Good Life'
A list of guidelines for a "good life" based empirically on what actually works for people, as discovered by modern psychological science.
GARY M. BAKKER

40
The Presidential Curse and the Election of 2020
As the 2020 presidential election approaches, talk of the presidential death curse has been renewed. Yet this hex has more to do with human psychology than the malevolent musings of a nineteenth-century medicine man.
TIMOTHY J. REDMOND

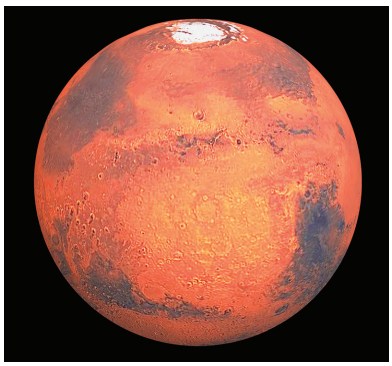
44
Everything Means Something in Viking
With the twenty-first century resurgence in racist bigotry in the Anglo-American and European world, racists have appropriated nineteenth-century Viking pseudohistory to bolster their belief in white supremacy.
BRIAN REGAL

48
Percival Lowell and the Canals of Mars, Part II: How to See Things That Aren't There
The same errors of observation and interpretation that led Percival Lowell and others to see "canals" on Mars can happen today. New experiments show that 30 percent of presumably rational respondents provided completely imaginary accounts of structures while looking at a *blank white disk*.
MATTHEW J. SHARPS, SETH HURD, BRANDON HOSHIKO, ERIK WILSON, MARY ALYSSA FLEMMING, SIMRAN NAGRA, AND MARIBELL GARCIA

52
Do Cosmetic Consumers Really Know What Ingredients They Are Using? An Inquiry into the Search for the 'Truth'
JAMES V. GRUBER

SPECIAL REPORTS

10
Hot Month, Hot Year, Hot Planet: Absorbing the Latest Climate News
KENDRICK FRAZIER



COMMENTARIES

14
From 'Cosmic Watergate' to Cosmic Watermelon: The Stanton Friedman I Knew
KAL K. KORFF

16
Witch Hunting Requires an International Response
LEO IGWE

COLUMNS

FROM THE EDITOR
When Science and Psi Collide 4

NEWS AND COMMENT
Another Scandal for Psychology: Daryl Bem's Data Massage / 2019 Richard Dawkins Award Goes to Ricky Gervais / CFI Survey on Homeopathy: Consumers Feel Scammed by Walmart and CVS / Wim Betz, Belgian Physician, Noted Critic of Unproven Remedies, Dies at Seventy-Six / Honors to Fraknoi, Vyse, Other CSI Fellows / Skeptical Activist Robert Lancaster Dead at Sixty-One 5

INVESTIGATIVE FILES
Haunted Asylums: Imagining Scary Ghosts
JOE NICKELL 20

REALITY IS THE BEST MEDICINE
Whither Chiropractic?
HARRIET HALL 24

BEHAVIOR & BELIEF
An Adventure in Peer Review
STUART VYSE 27

SKEPTICAL INQUIREE
The GIGO Problem: Crop Circle Research Edition
BENJAMIN RADFORD 32

NEW AND NOTABLE 59

LETTERS TO THE EDITOR 63

REVIEWS

The Advocates of Pseudoscience Are Not Monsters—but Pseudoscience Is
STEFANO BIGLIARDI 58
Pseudoscience: The Conspiracy against Science Guide edited by Allison B. Kaufman and James C. Kaufman

An Owner's Manual for the Vagina
HARRIET HALL 60
The Vagina Bible: The Vulva and the Vagina—Separating the Myth from the Medicine by Jen Gunter, MD

Finding Science and Wonder, Making Meaning
RUTH FRAZIER 62
For Small Creatures Such as We: Finding Wonder and Meaning in Our Unlikely World by Sasha Sagan

18
What We Get Wrong When We Talk about UFOs
FAYE FLAM

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[FROM THE EDITOR

When Science and Psi Collide

Two issues ago, we published without comment here an important special report with the provocative title "Why Parapsychological Claims Cannot Be True." Scientists are generally loathe to make absolute statements, for good reason. But our article's authors, Arthur S. Reber and James E. Alcock, both respected psychological scientists and longtime critical observers of parapsychology, stepped back from all the detailed and often arcane arguments about the data. Instead they presented a broader view based on fundamental principles of science. Their article was blunt. It was courageous. They said the entire field of parapsychology is bankrupt. Its claims violate causality, time's arrow, thermodynamics, and the inverse square law. The claims cannot be true.

One thing we pride ourselves on with the Skeptical Inquirer is that we have always had a substantive Letters to the Editor section. Seminal debates about issues of concern to skeptics often play out there. Once again that is so. The article has stimulated several concerned yet thoughtful letters published in this issue. As expected, most of the letter writers, while expressing their own doubts about psi claims, question the authors' use of *cannot* and *impossible*.

I hope you will read Reber and Alcock's reply. It is a masterpiece of lucidity. They eloquently defend their conclusion. I relate here just two key points of their rebuttal. They understand that many scientists "may take umbrage" at their declaration about the impossibility of psi. "And yet," they write, "such offense is not taken when a scientist declares that perpetual motion machines are impossible, that accelerating a body to speeds greater than that of light is impossible, and that water cannot retain a 'memory' of a substance that has been diluted out of existence. 'Impossibility' is a hallmark of science." Their conclusion follows a famous dictum of Hume and, they write, "is, in fact, a simple statement concerning the coherency of fundamental principles of science that apply across domains."

A formal journal article by Reber and Alcock relating their arguments in detail has been accepted by *American Psychologist* and should appear soon. Its title is "Searching for the Impossible: Parapsychology's Elusive Quest." It will be interesting indeed to see how the rest of the psychological community reacts to their blunt assessment.

In my view, Reber and Alcock have made a valuable contribution, seeing clearly through decades of confusion. They say that 150 years of parapsychological research "has established nothing," and it may be time to pull the plug. That probably won't happen, but now you know why most scientists have always been so dubious about the whole field.

* * *

We are used to various lists of guidelines for living, but most are subjective and flawed. In this issue, Australian clinical psychologist Gary M. Bakker presents one based on the evidence. His "Nine Evidence-Based Guidelines for a 'Good Life'" draws upon psychological research to focus only on those proven effective. When you peruse them, I think you will find them also to be the essence of common sense. That's a refreshing situation.

—Kendrick Frazier

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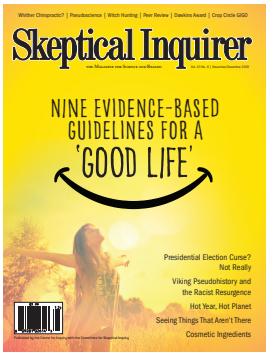
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Another Scandal for Psychology: Daryl Bem's Data Massage

Susan Blackmore

In a tweet on August 16, 2019, psychologist Richard Landers asked, "Who's surprised that these paragraphs simply disappeared wholesale from Daryl Bem's 2019 2ed revision of his chapter in Sternberg's 'Guide to Publishing in Psychology'?" The deleted parts basically amount to an endorsement of p-hacking and data massage, with Bem explicitly urging authors to "Go on a fishing expedition for something—anything—interesting."

Bem is a name well known to thousands of undergraduates as a coauthor of the famous *Hilgard's Introduction to Psychology*. But he is clearly in trouble, and so he should be. These omitted paragraphs are bad enough, but he has form. In a 2017 Skeptical Inquirer article, psychologist Stuart Vyse highlighted the dangers of p-hacking, the highly dubious practice of hunting around in one's data until you find something "significant" (i.e., statistically significant, preferably with p below the 0.5 level). That dubious practice, he says, was once common but is now largely acknowledged as unacceptable (Vyse 2017). Only Bem still seems to think it's okay, saying of his past experiments, "They were always rhetorical devices. I gathered data to show how my point would be made. I used data as a point of persuasion, and I never really worried about, 'Will this replicate or will this not?'" (Engber 2017).

This latest scandal for psychology goes straight to my heart because of the harm Bem has done to parapsychology—and hence to the public's beliefs about psychic phenomena. In decades of research Bem has claimed, again and again, that there is solid evidence for psi in the ganzfeld and, more recently, for "feeling the future." This involves a type of experiment on premonition in which, it is claimed, emotional responses to images can be detected *before* the person sees them.

Why am I so upset about this? Because in 1979, I discovered that my friend and colleague in Cambridge, Carl Sargent, was manipulating the results in his ganzfeld experiments through an unnecessarily complicated randomization procedure. The story was eventually published (Blackmore 1987; Harley and Matthews 1987). Sargent denied fraud but quickly left the field and died last year. But—and here's the important point—Bem had included Sargent's data in his review of ganzfeld meta-analyses, as well as discussing randomization procedures. Yet he did not even cite the papers these data came from and certainly did not refer to my paper showing how Sargent had cheated (Bem and Honorton 1994). I have challenged Bem personally over this, but he denies that it matters. The public impression was given, and remains, that psychic effects have been found when they have not.

My point was not to drag up the Sargent "fraud or not" question but to highlight the danger to psychology of Bem's actions.

Does this matter? Yes, very much. If true evidence for the paranormal were found, the implications for the rest of science would be profound. Meanwhile, Bem's claims for ganzfeld and other psychic effects are frequently cited as providing such evidence when they do not. So people are being badly misled, with consequences for their trust in science.

I wrote a post about Landers's tweet for my blog on *Psychology Today* and linked to my Facebook page. Unfortunately, the blog's editors changed my title from "Another Scandal for Psychology" to "How Not to Find Evidence of Psychic Phenomena." This, as you can imagine, provoked comments asking why I didn't review all the more recent ganzfeld work, others defending Sargent, and others—correctly—pointing out that there can be wishful thinking and data manipulation on both sides. But my point was not to drag up the Sargent "fraud or not" question but to highlight the danger to psychology of Bem's actions. I hope that exposing such dodgy practices makes future researchers less likely to indulge in trying to prove their own beliefs rather than seeking the best explanation.

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Psychologist Susan Blackmore has been an informed critic of parapsychology back to when she did experiments herself in that field and found it lacking rigor. Her latest book is *Seeing Myself: The New Science of Out-of-Body Experiences.*

2019 Richard Dawkins Award Goes to Ricky Gervais

Multi award-winning stand-up comedian, screenwriter, and actor Ricky Gervais received the 2019 Richard Dawkins Award in London on September 3, 2019. The Richard Dawkins Award has been given since 2003, but this was the inaugural award under auspices of the Center for Inquiry (CFI). New guidelines for the award, drafted by Richard Dawkins and adopted in June 2019 by the CFI board (on which Dawkins serves), state that "The recipient will be a distinguished individual from the worlds of science, scholarship, education, or entertainment who publicly proclaims the values of secularism and rationalism, upholding scientific truth wherever it may lead."

Gervais is known for his brilliant wit, often deployed in his public appearances to advocate entertainingly for science, rationalism, critical thinking, and secularism, always with humor and a ready smile.

We asked ***CFI CEO and President Robyn Blumner****, who introduced the evening event, for her first-person report.*

The event could hardly have been more spectacular or entertaining. On September 3 at the Troxy Theatre in London, Ricky Gervais was awarded the 2019 Richard Dawkins Award before a sold-out crowd of 2,000.

The award was given to Gervais in recognition of his outspoken atheism and his wonderfully comic defense of rational thinking. He joins other winners, including Bill Maher, Penn & Teller, Julia Sweeney, Ayaan Hirsi Ali, Christopher Hitchens, and last year's winner, Stephen Fry.

In bestowing the award during the Center for Inquiry–sponsored event, Richard Dawkins gave a moving tribute, calling Gervais a "witty hero of atheism and reason." And Dawkins mined some of Gervais's most profound and profoundly funny comments about the absurdity of religion, the defense of atheism, and his philosophy of life.

About life and death, Dawkins pointed to Gervais's spot-on observation that "It's a strange myth that atheists have nothing to live for. It's the opposite. We have nothing to die for. We have everything to live for." Dawkins also delighted in this Gervais gem: "That's the best thing about being dead. You don't know about it. It's like being stupid: it's only painful for others."

The award was given to Gervais in recognition of his outspoken atheism and his wonderfully comic defense of rational thinking.

And, Dawkins said, "I've never known quite how to cope with the retort that it's *only extremists* who get a religion a bad name. Ricky's retort hits the nail on the head: 'You could easily spot any Religion of Peace. Its extremist members would be extremely peaceful.'"

The evening's main event was a conversation between Gervais and Dawkins, moderated by best-selling author and psychology professor Richard Wiseman. (Dawkins and Wiseman are both fellows of the Committee for Skeptical Inquiry.)

That's where Gervais disclosed that when he first came to America he was told not to mention that he was an atheist because it could put his audiences off. "It's the first thing I did!" he said, demonstrating his celebrated fearlessness.

The discussion included some of the more ridiculous and clueless questions about evolution that have been asked, such as whether a "Croco-Duck" is possible. This led the conversation to an exploration of the oddities of the platypus, which, as Gervais pointed out, is a mammal that lays eggs, producing both eggs and milk. "It could make its own custard," he quipped.

When Wiseman asked Gervais, "In what direction do you see yourself going in the future?" He said, without missing a beat, "Downhill."

Well, there's no sign of that. Having Gervais and Dawkins on stage together made it historic. Their wit—and that of Richard Wiseman—made it also grand fun.

CFI Survey on Homeopathy: Consumers Feel Scammed by Walmart and CVS

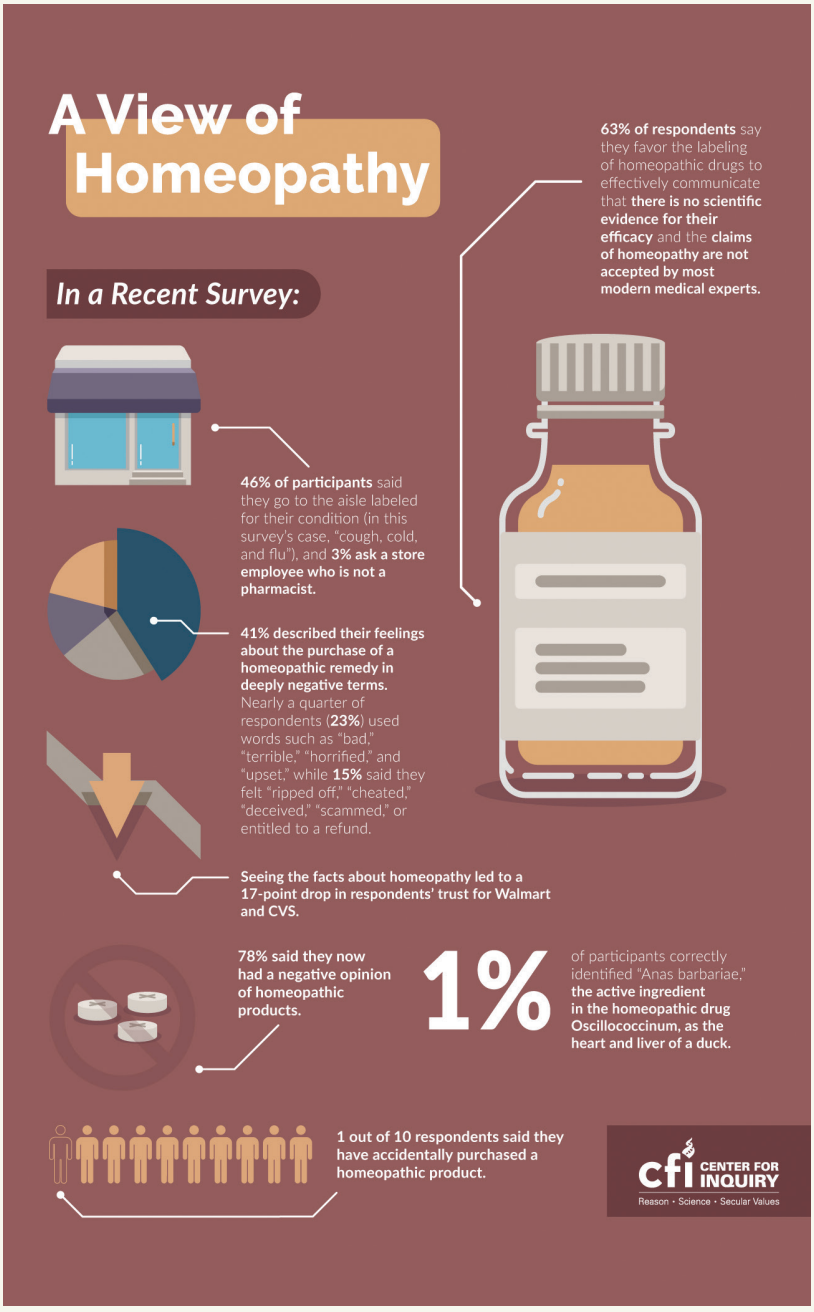
Exposure to the truth about the pseudoscience of homeopathy leads a large percentage of consumers to feel ripped off and deceived by the two largest drug retailers, Walmart and CVS, to whom they entrust their health and the health of their families.

The survey, conducted by Lake Research Partners for the Center for Inquiry and generously supported by the Stiefel Freethought Foundation, asked respondents about how they make their purchasing decisions for cough, cold, and flu remedies at Walmart and CVS and about their general knowledge of the basic principles of homeopathy, an eighteenth-century pseudoscience that has been utterly disproven, having no medical benefits beyond that of a placebo.

The Center for Inquiry is suing both Walmart and CVS in the District of Columbia for fraud over their deceptive sale of homeopathic products (SI, September/October 2019 and November/December 2018). Walmart and CVS sell homeopathic products alongside real, evidence-based medicine, both on store shelves and online, making no meaningful distinction between them. Nearly half of survey respondents said that they rely on their retailers to guide them to the remedies they need. Forty-six percent said they go to the aisle labeled for their condition (in this survey's case, "cough, cold, and flu"), and 3 percent ask a store employee who is not a pharmacist.

Once respondents were told the essential facts about homeopathy's pseudoscientific claims, 41 percent described their feelings about the purchase of a homeopathic remedy in deeply negative terms. Nearly a quarter of respondents (23 percent) used words such as "bad," "terrible," "horrified," and "upset," while 15 percent said they felt "ripped off," "cheated," "deceived," "scammed," or entitled to a refund. Three percent were made to feel "stupid" or "foolish."

For details of the survey, announced September 17, see centerforinquiry.org. The Center for Inquiry and its Committee for Skeptical Inquiry publish the SKEPTICAL INQUIRER.


A View of Homeopathy
In a Recent Survey:
63% of respondents say they favor the labeling of homeopathic drugs to effectively communicate that there is no scientific evidence for their efficacy and the claims of homeopathy are not accepted by most modern medical experts.
46% of participants said they go to the aisle labeled for their condition (in this survey's case, "cough, cold, and flu"), and 3% ask a store employee who is not a pharmacist.
41% described their feelings about the purchase of a homeopathic remedy in deeply negative terms. Nearly a quarter of respondents (23%) used words such as "bad," "terrible," "horrified," and "upset," while 15% said they felt "ripped off," "cheated," "deceived," "scammed," or entitled to a refund.
Seeing the facts about homeopathy led to a 17-point drop in respondents' trust for Walmart and CVS.
78% said they now had a negative opinion of homeopathic products.
1%
of participants correctly identified "Anas barbariae," the active ingredient in the homeopathic drug Oscillococcinum, as the heart and liver of a duck.
1 out of 10 respondents said they have accidentally purchased a homeopathic product.
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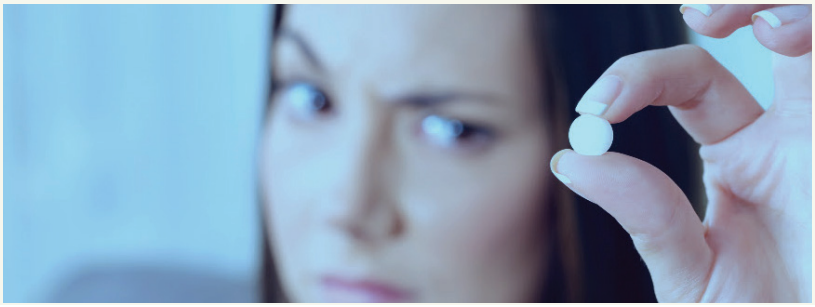
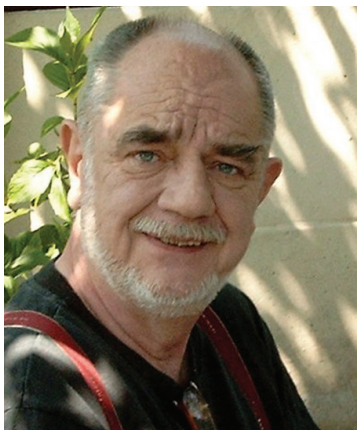


Wim Betz, Belgian Physician, Noted Critic of Unproven Remedies, Dies at Seventy-Six

Paul De Belder



With great sadness the Flemish Belgian skeptics group SKEPP (*Studiekring voor Kritische Evaluatie van Pseudowetenschap en het Paranormale*) announces the passing away of their honorary chairman, Prof. Dr. Willem (Wim) Betz, on June 8, 2019. He was seventy-six and had been ill for quite a while.

Betz was well known worldwide as a fierce critic of homeopathy and other unproven remedies and was one of the founders of SKEPP in 1990. He started as its secretary and led the organization from 2005 to 2013 as its president. Betz was also a longtime fellow of the Committee for Skeptical Inquiry. He wrote or cowrote many articles for the Skeptical Inquirer.

Betz, a physician, started off as general practitioner and later became professor of general medicine at the Brussels Free University VUB. In that profession, he was regularly confronted with alternative therapies. Open-minded, he initially took courses in several of them. But very soon he concluded that their effectiveness was unproven and that their success could be explained by psychological effects.

Betz was well known worldwide as a fierce critic of homeopathy and other unproven remedies and was one of the founders of SKEPP in 1990.

Betz also criticized attempts to bestow recognition to homeopathy, acupuncture, osteopathy, and chiropractic. He noted that one could equally well legitimize the laying on of hands or prayer healing, which score equally well (or badly) for patients due to placebo effects.

His point of view led to animated discussions with opponents, sometimes in national media. That today alternative therapies are still not recognized in Belgium is largely due to Betz's ardent criticism.

In 2012, Betz was awarded the Outstanding Skeptics Award by the European Council of Skeptical Organizations (ECSO). He was the first Belgian to be awarded the *Gebroeders Bruinsma Erepenning* by the venerable Dutch *Vereniging tegen de Kwakzalverij* (Society against Quackery, founded in 1881). He played an important role in our organization and was a source of inspiration to all of us. He will be sorely missed.

Paul De Belder is president of SKEPP, the Flemish Belgian skeptics group.

Honors to Fraknoi, Vyse, Other CSI Fellows

Some recent honors awarded to fellows of the Committee for Skeptical Inquiry:

Andrew Fraknoi

The National Space Club (NSC) has awarded the 2019 Space Educator: Lifetime Achievement Award to Andrew Fraknoi, astronomy professor at the Fromm Institute for Lifelong Learning at the University of San Francisco. Fraknoi is the first astronomy educator to receive the prize. The award citation honors Fraknoi for "his career as an award-winning astronomy educator, innovator, author, and key link communicating our expanding knowledge of the universe." It adds, "His books, textbooks, virtual curriculum, public activities, and interaction with students and audiences numbering in the thousands have inspired and engaged the American public in the exploration of space."

Fraknoi accepted his award at the NSC's 62nd Annual Robert Goddard Memorial Dinner on March 22, 2019, in Washington, D.C., in the company of some 2,000 aerospace industry, exploration, and education leaders. Fraknoi was previously chair of astronomy at Foothill College in Los Altos, California, and before that served fourteen years as executive director of the Astronomical Society of the Pacific.

* * *

Stuart Vyse

The Association for Psychological Science (APS) has elected independent scholar and SI columnist and contributing editor Stuart Vyse a fellow. Fellow status is awarded to APS members "who have made sustained outstanding contributions to the science of psychology in the areas of research, teaching, service, and/or application."

* * *

The German skeptics group GWUP has announced its third round of new fellows. The new group of GWUP fellows includes "Guerilla Skeptic" Susan Gerbic; Yale University physician and *Skeptics Guide to the Universe* podcaster Steven Novella; and biological anthropologist and evolution-defender Eugenie C. Scott.

Skeptical Activist Robert Lancaster Dead at Sixty-One

Robert Lancaster, one of the pioneers of internet-based skeptical activism, died September 7, 2019. Lancaster, a Los Angeles–based computer programmer, was perhaps best known as the founder of a website dedicated to exposing alleged psychic (and convicted felon) Sylvia Browne.

He collected an exhaustive database on Browne, including transcripts of her appearances on *The Montel Williams Show*, where she often appeared. As Susan Gerbic, who collaborated with him, noted:

> He created a website called Stop SylviaBrowne.com [originally Stop Sylvia.com] with every checkable fact he could find. He searched for instances where Sylvia was found to be correct and would have graciously published them if found. It was tedious work with terrific results, and I visited the website daily to see if anything new was out. It took him weeks to get a story out, but still I checked … just in case.

Lancaster's skepticism didn't begin with Browne but instead with a person named Kaz deMille-Jacobsen, who had spoken at his mother's church, telling an incredible story of survival and salvation. She had been in the World Trade Center on September 11, 2001, when her building was hit by an airplane; in fact, she said that she could see the plane flying directly at them from inside an elevator as its doors closed. After escaping the elevator—which she attributed to divine intervention—she spent years speaking at Christian churches about the power of faith.

As Lancaster's research revealed, deMille-Jacobsen's story was indeed literally incredible. She was nowhere near the Twin Towers during the attack and had in fact been in southern California at the time, as exhaustively documented on the www.stopkaz.com website (among her many fabrications, deMille-Jacobsen also falsely claimed to have been a relative of filmmaker Cecil B. DeMille). Gerbic wrote of Lancaster's investigative thoroughness as well as his fairness:

> I'm reminded of the level of detail and research that Robert left for us. He has correspondence with people from all over the world who interacted with Kaz ... . Robert has cease-and-desist letters from the deMille family sent to Kaz and testimony from elevator experts about how it was impossible for people to climb out of the World Trade Center elevator. Throughout the website, Robert is factual and kind. Over and over, he offers Kaz a chance to explain, to show him evidence that he is wrong.

Robert Lancaster with Susan Gerbic at TAM 2008. Photo by Paulina Mejia.

Lancaster and Gerbic in 2017.

Lancaster receiving the Citizen Skeptic Award from the James Randi Educational Foundation in 2009. Photo by Tim Farley.

In 2009, Lancaster was awarded the Citizen Skeptic Award from the James Randi Educational Foundation.

Lancaster suffered a stroke in 2008, from which he never fully recovered. In 2009, he was awarded the Citizen Skeptic Award from the James Randi Educational Foundation, accompanied by his wife, Susan. He continued his work, eventually turning his sights to another psychic, James Van Praagh, though a website dedicated to him never materialized. After suffering the first of several heart attacks in 2011, he faded from public view. His websites are defunct (although they can be accessed via internet archives), but his legacy in digital-age investigative skepticism remains.

Hot Month, Hot Year, Hot Planet: Absorbing the Latest Climate News

KENDRICK FRAZIER

After this past summer's sizzling heat, many people will undoubtedly welcome the coming of winter in the northern hemisphere. Colder weather, though seasonally temporary, will be refreshing. Australians, though, and others in the southern hemisphere, may not be looking forward to their coming summer.

Globally, July 2019 was the hottest July and month on record. The entire summer in the Northern Hemisphere, where 90 percent of Earth's population lives, turned out to be the hottest summer on record. The heat records just kept piling up. This left no doubt that the entire planet is warming and now reaching levels felt by millions and clearly affecting life. The Arctic bore the biggest brunt, with Alaska setting all-time heat records and the Greenland ice cap melting at alarming rates (over two days, enough ice melted to cover Denmark with two meters of water).

Globally, July 2019 was the hottest July and month on record, and the heat records just kept piling up.

In addition, a trio of new scientific papers showed that the current warming is unprecedented over the past 2,000 years, that the rate of warming exceeds anything seen in the past two millennia, and that while past climate epochs weren't globally simultaneous, this current one is. The entire planet is heating.

Science journalists, like the scientists they cover, continued to debate how best to get the scientific news about climate change to a public that—in the United States at least—remains divided on acceptance. They have found that understanding readers' emotional responses to unwelcome news and drawing on psychologists' findings about human behavior are as important as the gathering and presenting of the facts.

A study released by the World Weather Attribution found that climate change made the July heat wave in western Europe at least ten times as likely to occur compared with a climate not suffering such increases in greenhouse gases.

Yow, Was It Warm!

In August, the National Oceanic and Atmospheric Administration (NOAA) published its *State of the Climate: Global Climate Report* for July 2019. Here are some of the findings (NOAA 2019a; NOAA 2019b).

The July 2019 global land and ocean surface temperature departure from average was the highest for July since global records began in 1880 at 0.95°C (1.71°F) above the twentieth-century average.

Nine of the ten warmest Julys have occurred since 2005, with the past five years (2015–2019) ranking among the five warmest Julys on record. July 1998 is the only July from the twentieth century to be among the ten warmest Julys on record.

July 2019 marked the forty-third consecutive July and the 415th consecutive month with temperatures above the twentieth-century average. Julys 2016, 2017, and 2019 are the only Julys that had a temperature departure from average at or above 0.90°C (1.62°F). Climatologically, July is the globe's warmest month of the year, so with July 2019 the warmest July on record, this resulted in the warmest month on record for the globe.

Regionally, North America, Africa, Asia, Oceania, the Caribbean region, the Hawaiian region, and the Gulf of Mexico had a July temperature that ranked among the ten warmest Julys on record. Africa had its warmest July on record at 1.65°C (2.97°F) above average. This value exceeds the previous record set in 2015 by 0.18°C (0.32°F).

July 2019 marked Europe's twenty-third consecutive July with above-average temperatures.

Another intense heat wave affected Europe at the end of the month, less than four weeks after the June heat wave.

Paris's high temperature soared to 108.7°F on July 25, easily surpassing the previous record of 104.7°.

According to the World Meteorological Organization (WMO), Belgium, Germany, Luxembourg, and the Netherlands set new national temperature records. Just as in Paris, Germany's temperature reached 108.7°F (42.6°C) on July 25, breaking its previous record by

4.1°F. Norway tied its maximum temperature record. In the United Kingdom, the 101.7°F temp on July 25 at the weather station in Cambridge Botanic Garden became the United Kingdom's highest temperature on record.

In Spain, the station at San Sebatian-Igueldo hit 102.2°F on July 23, the highest temperature observed at that location since records began in 1928.

Warmer-than-average conditions engulfed much of Australia, and New Zealand had its second warmest July ever (after the El Nino year of 1998).

Sea ice also shrank to record or near-record lows. The Arctic sea ice extent set a record low for July. Sea ice was 19.8 percent below the 1981–2010 average according to an analysis by the National Snow and Ice Data Center using data from NOAA and NASA. During July 2019, sea ice loss occurred at an average rate of 40,800 square miles per day, surpassing the 1981–2010 average loss of 33,500 square miles. Only seven other years (1990, 1991, 2007, 2009, 2013, 2015, and 2018) had a daily rate of sea ice loss exceeding 38,600 square miles.

The July 2019 Antarctic sea ice extent was 260,000 square miles, 4.3 percent below the 1981–2010 average and was the smallest July extent in the forty-one-year record.

All in all, the first seven months of 2019 were marked by much-warmer-than-average conditions across much of the world's land and ocean surfaces. (See map, with most of planet showing red much-above-average temperatures.) Ironically, Americans enjoyed a bit cooler than average temperatures, with much of the contiguous United States and southern Canada experiencing temps at least 1.8°F (1.0°C) cooler than average. Given these temperature observations so far and the global temperature outlook, NOAA says, "It is virtually certain that 2019 will end among the top five warm years."

"It now appears that July was the hottest month on record for the planet," climate scientist and CSI Fellow Michael Mann of Pennsylvania State University told the Skeptical Inquirer. "Embedded in that record warmth were unprecedented heat waves in Europe and Asia, a reminder that dangerous climate change isn't a distant threat. By some measure, it is already here."

Alaska's and Iceland's Rapid Warming

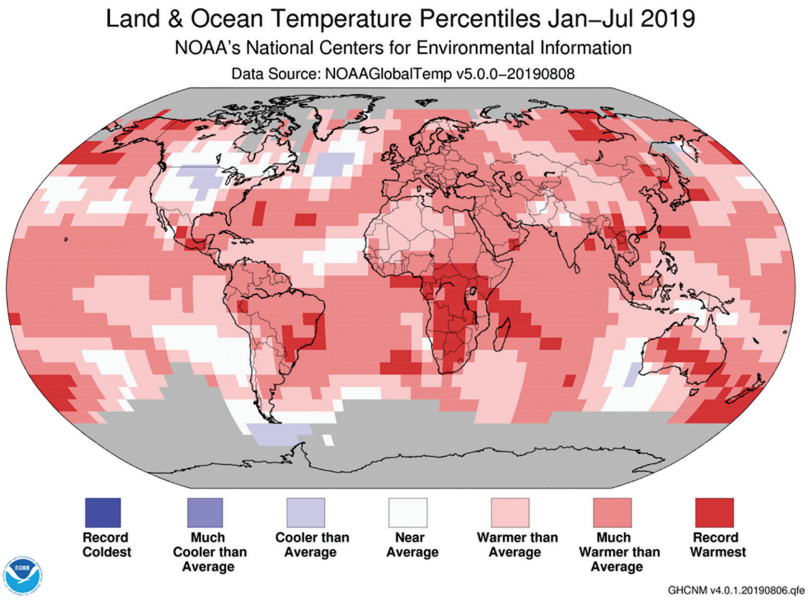
So those are the observations and measurements. Are humans noticing? Yes.

"Alaska has been America's canary in the coal mine for climate warming, and the yellow bird is singing," begins an August 18 Associated Press news report from Anchorage by reporter Dan Joling (2019). Anchorage, Alaska's largest city, hit 90°F for the first time on July 4. That was five degrees warmer than the previous record. What were some of the results of Alaska's warmest ever temperatures this summer?

Paris's high temperature soared to 108.7°F on July 25, easily surpassing the previous record of 104.7°.

"Sea ice melted. Bering Sea fish swam in above-normal temperatures. So did children in the coastal city of Nome. Wildfire season started early and stayed late. Thousands of walruses thronged to shore." Joling quoted climate scientist Brian Brettschneider of the University of Alaska's International Arctic Research Center in Fairbanks about the "multiple decades-long increases" in temperature that Alaska is seeing: "It becomes easier to have these unusual sets of conditions that now lead to records." The good news? Some bumper crops of tomatoes and jalapenos. But Brettschneider sees mostly negative effects. He said at this rate, in fifty years Alaska may look like Idaho.

Iceland is preparing for a world without ice. Iceland's Vatnajokull glacier has been shrinking year by year, so much so that the earth's crust, unburdened of the weight, is rising from the sea, draining fjords, shifting sediments, and twisting the town's sewer pipes. "The glacier is melting so much that the land is rising from the sea," Adalsteinn Ingolfsson, chief executive of one of Iceland's biggest fishing companies, told business reporter Liz Alderman of the *New York Times* (Alderman 2019). When those record temperatures hit western Europe in late July, Reykjavík also recorded its highest temperature ever.



"Climate change is no longer something to be joked about in Iceland or anywhere," Iceland President Guni Johannesson told the *Times*. "We realize the harmful effects of global warming. We are taking responsibility to seek practical solutions. But we can do better."

What can we conclude? We know there have been significant natural variations in the past several thousand years.

The first seven months of 2019 were marked by much-warmer-than-average conditions across much of the world's land and ocean surfaces.

What about that? Many critics of climate science invoke these fluctuations to argue that what's happening today has happened in the past, but this is not true. Three new scientific studies give historical perspective.

Three New Scientific Studies

An international group of scientists led by climate scientist Raphael Neukom (2019) of the University of Bern reconstructed the climates of the past two millennia in a new study drawing upon tree rings, ice cores, lake and ocean sediments, corals, cave deposits, and historical documents. This international consortium of scientists, called "PAGES 2k Consortium," combined these records with direct measurements collected since the 1800s to produce 15,000 reconstructions of global temperature. They looked at the precise timings of periods of earlier climate epochs, or prolonged fluctuations: the Roman warm period from CE 1 to 300, the Dark Ages cold period from 400 to 800, the Medieval Climate Anomaly from 800 to 1200, and the Little Ice Age from 1300 to 1850. They used many different methodologies and calculations to process the data and determine past temperatures.

No matter the methods used, the results were the same: These past climate epochs were not simultaneous, global events. They varied over time and place, with centuries separating warming (or cooling) in one place from warming (or cooling) in another. For instance, they found that the coldest epoch of the past millennium—the "putative" Little Ice Age—is most likely to have experienced the coldest temperatures during the fifteenth century in the central and eastern Pacific Ocean, during the seventeenth century in northwestern Europe and southeastern North America, and during the mid-nineteenth century over most of the remaining regions. So it's not the case that these past epochs were simultaneous. They say this lack of spatial-temporal coherence means that preindustrial (natural) forcing was not sufficient to produce globally coherent temperature extremes. By contrast, they find that the warmest period of the past two millennia occurred during the twentieth century for more than 98 percent of the globe. (This study ended at year 2000, so it doesn't even factor in the rising heat of the past two decades.)

"This provides strong evidence that anthropogenic global warming is not only unparalleled in terms of absolute temperatures, but also unprecedented in spatial consistency within the context of the past 2,000 years," the study's authors say. This study was published in the July 25 *Nature*.

In contrast, the current warming of the planet is occurring concurrently around the globe. "It is coherent in a way we didn't experience over the past 2,000 years," says study coauthor Nathan Steiger of Columbia University. He is quoted in an article on these findings titled "Current Warming Is Unprecedented" by Earth and Climate Editor Carolyn Gramling (2019) in the August 17 *Science News*.

The PAGES 2k Consortium's (2019) own report based on seven of the same data reconstructions was published in the August 2019 *Nature Geoscience*. The consortium authors attribute many of the climate fluctuations from 1300–1800 to effects of aerosols (particles and gases) spewed into the atmosphere from major volcanic eruptions during those times. All in all, they found, "the largest warming at timescales of 20 years or longer occur during the second half of the twentieth century, highlighting the unusual character of the warming in recent decades."

A third study, by Stefan Brönnimann, also of the University of Bern, and eleven colleagues (Brönnimann et al. 2019) and also published in the August *Nature Geoscience* goes into the history of volcanic eruptions in some depth. It concludes that the last phase of the Little Ice Age was extended by major volcanic eruptions in 1808 or 1809 and in the 1820s and 1830s. These kept temperatures cool until anthropogenic warming from the industrial revolution took over. These recently published scientific studies led Michael Mann, who was not involved in any of them, to state: "The current period of warmth is unprecedented in its global scope in the last 2,000 years" (quoted in the August 17 *Science News* article).

Science Journalists and Climate

Science journalists have been reporting on the science about our warming planet while struggling with the resistance they continue to receive from some climate naysayers. The Summer/Fall 2019 issue of *ScienceWriters*, the magazine of the National Association of Science Writers (of which I am a lifetime member), devotes its cover article to "Reporting on Climate Change: The Good, the Bad, and the Ugly." A recent panel on the subject drew standing-room-only crowds. It is summarized in a piece in which science journalist Ann Parson (2019) interviews Woods Hole NPR affiliate reporter Heather Goldstone, creator of the blog *Climatetide*. Goldstone has found that noticeable climate change is upon us. For instance, commercially exploited marine species have moved north in response to warming temperatures. And she has seen the beach erosion from sea-level rise and the more powerful storms that a changing climate brings. Parsons introduces the piece by noting that she'd just learned that Indonesia had decided to move its capital to another location because of the bad flooding and sinking ground Jakarta was experiencing.

Many critics of climate science invoke these fluctuations to argue that what's happening today has happened in the past, but this is not true.

"What the science shows," Goldstone says in response to one question, "is that if a story evokes certain emotions, it can actually impede a person's ability to absorb the facts, the information." Fear is paralyzing, she notes, and the brain's response is to shut it out and ignore it. She also notes the research of Dan Kahan at Yale University, which we have reported on in these pages, showing that group identities are powerful cohesive forces for humans, and those allegiances determine how we respond to new information. When we ask people about climate change, they don't respond according to the latest science but according to which political and cultural identity they feel allegiance to (Parson 2019).

Journalists have learned not to constantly hit people over the head with the scientific data showing warming is happening at alarming rates globally but to focus on stories that show direct, local effects on individual lives. And also, to give some hope that positive things can still be done.

In the meantime, enjoy this coming winter, folks. Another hot summer is likely to follow. ■

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From 'Cosmic Watergate' to Cosmic Watermelon: The Stanton Friedman I Knew

KAL K. KORFF

I first started studying UFO reports on October 17, 1973. By the time I was thirteen years old, I had met and become friends with famed UFO researcher Stanton T. Friedman, who recently passed away at age eighty-four (see Joe Nickell's piece in the September/October 2019 SI). Friedman had taken me under his wing and was a former mentor of mine. To say he was a great influence on me when I was young is an understatement. Until disagreements over various UFO cases came between us, we still "agreed to disagree"—we remained civil and friends.

Though I started out as a hardcore "UFO believer" when I was a teenager, ironically it was in working closely with Friedman that I saw through his schtick, eventually learning to embrace a truly skeptical approach to investigating UFO reports. I have championed this approach ever since.

Though I started out as a hardcore "UFO believer" when I was a teenager, ironically it was in working closely with Friedman that I saw through his schtick.

Crackpot Vocabulary

One of the biggest revelations I had in understanding the true nature of Stanton Friedman and his biases was in seeing how he deliberately twisted the meaning of very important words to further what really was his own propaganda. The word *debunker* was perhaps his favorite. To Friedman, UFO skeptics such as the late Philip J. Klass, James Oberg, and especially Robert Sheaffer—"Little Bobby Sheaffer" as he used to say to me—are all guilty of committing the crime of using facts to back up their claims. As Friedman said, "Don't confuse me with facts; my mind is already made up." To Friedman, the word *debunker* means someone whose mind is closed, a person with an obvious agenda. In the real world, the true definition of *debunker* is someone who separates "bunk" or falsehoods from facts. Debunking is not only good for the UFO field, it must be embraced. There's something very wrong with "researchers" who think that separating fact from fiction is ever a bad thing.

Betty Hill's 'Alien Star Map'

Speaking from firsthand experience again, I know that Stanton Friedman always knew the real truth about Betty Hill's "alien star map." Based on the admirable work of amateur astronomer Marjorie Fish, the map supposedly identified the stars Zeta Reticuli 1 and 2 as being the "home base" where the aliens who supposedly abducted Betty and Barney Hill had come from. Unfortunately, to this day "The Reticulans" are just as much a part of modern day American cultural mythology as are Roswell and MJ-12, thanks to Friedman!

It was over the Hill case and Friedman's refusal to face the facts that caused me to largely break ranks with him. In 1976, Robert Sheaffer wrote an article published in *Official UFO Magazine*. In this devastating exposé, Sheaffer correctly argued that another "star map" had been found that was a better fit than Marjorie Fish's work, a map made by astronomer Charles Atterberg. When confronted with Sheaffer's exposé, Friedman immediately gave me his song and dance routine that Sheaffer was a "debunker," that "all debunkers operate the same way: research by proclamation. Don't confuse me with facts; my mind is made up."

What once distinguished the Hill case from all other claimed abductions was the supposed credibility of Fish's star map. If more than one candidate

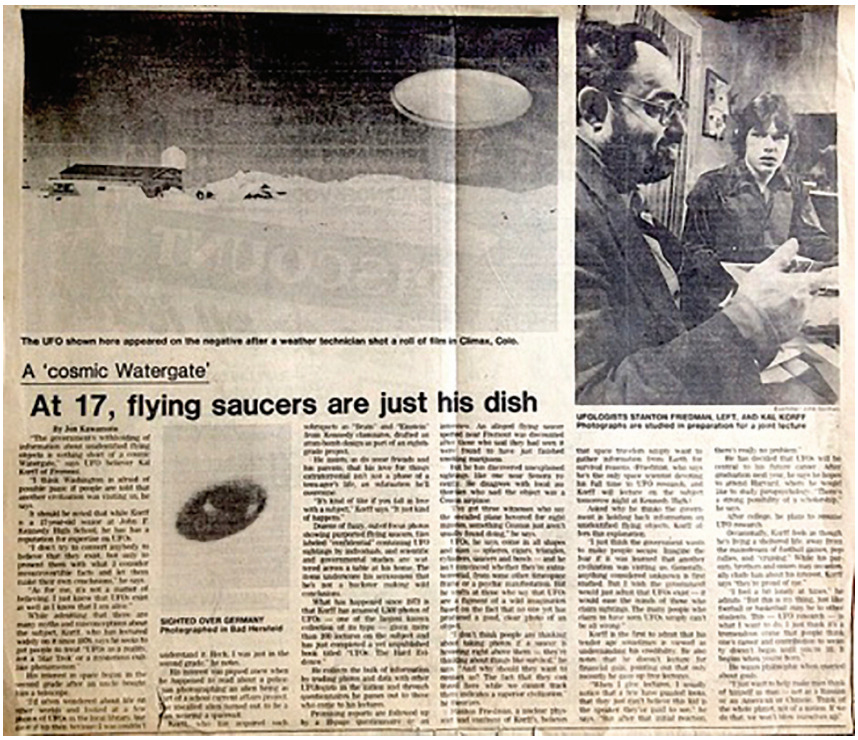
group of stars seemed to fit, then this "alien star map" was worthless, essentially a Rorschach blot. Atterberg's work was superior to Fish's. He used more recent and accurate astronomical data not available to Fish when she did her study. Indeed, when the Hipparcos satellite was launched in 1989, its measurements further destroyed the Fish star map interpretation. You would never know this from talking to Friedman.

After Sheaffer's exposé was published, Friedman refused to take the initiative to determine whether Fish's or Atterberg's claims were right. Instead, he resorted to doing what he slammed the debunkers for engaging in: "research by proclamation." Friedman was simply proclaiming that Sheaffer was wrong, but he refused to try to prove it.

Refusing to do the same, I spearheaded this investigation, corresponded for over one year with Atterberg, throwing everything Friedman could think of back at him, plus my own points, with me being the middleman in all of this. After a year of correspondence, I finally had to admit that Atterberg was right; Friedman was not only wrong, he was being dishonest! I handed Friedman my now thick file of letters with Atterberg, and he looked at the file for about forty seconds. He flipped through a few pages in his basement office in Union City, then handed the folder back to me and said, "I don't know. I'm not an astronomer!"

Oh, I get it, Stan. Suddenly you are "not an astronomer," but you're just a "good enough astronomer" to promote the myth of the Fish star map for years, even though the idea has now been discredited. That was it for me. If I wanted to really understand the truth about UFO cases any further, it was not going to happen by working closely with Stanton Friedman.

There was another event I experienced, the details of which I have never revealed in writing before. When I invited Friedman to lecture with me in high school—thanks to Friedman, I also started lecturing when I was only thirteen—I arranged a press conference and


The UFO shown here appeared on the negative after a weather technician shot a roll of film in Climax, Colo.

A 'cosmic Watergate'

At 17, flying saucers are just his dish

SIGHTED OVER GERMANY
Photographed in Bad Hersfeld

UFOLOGISTS STANTON FRIEDMAN, LEFT, AND KAL KORFF
Photographs are studied in preparation for a joint lecture

1979 *San Francisco Examiner* photograph of author Kal Korff (right) at the moment Stanton Friedman declared that we'd contact aliens within twenty years.

individual face time with all the major reporters so that he and I could speak to them.

Because of time overlaps, two reporters were present: one from the *San Francisco Examiner* and one from the *Oakland Tribune*. As the *Tribune* reporter correctly reported in his article, I was shocked at some of the things that Friedman started saying. Not only did this journalist capture Friedman's words accurately, the *Examiner* photographer's photo taken during this time shows the exact moment my mouth is open aghast in response to what I am hearing Friedman say. Friedman was sharing beliefs that exposed his true lack of objectivity and his penchant for doing "research" by proclamation. Here's what he said that stunned everyone in that room—me included.

In a damning article titled "Apostle of UFOs Says the Day Is at Hand," Friedman boasted with "certainty" that official "contact" with aliens would happen within "20 years." This was in 1979; you do the math. "Do you really think so?" asked the startled Korff, as the article noted.

"Absolutely," said Friedman. "The space shuttle will be flying regularly by then, and this will bring down the UFOs."

Friedman "retired" from UFOlogy just months before his death, saying "It was time." Unfortunately, he is either largely or wholly responsible for spreading several of the most enduring and dangerous myths about UFOs, which have harmed society and destroyed basic trust in the government, its military, and other institutions such as NASA. This includes the myths of Roswell, the MJ-12 hoax, "Zeta Reticulans," the Hill "alien star map," and so forth *ad nauseam*. These facts about Stanton Friedman are beyond dispute and can easily be verified by anyone who thinks critically. ■

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Witch Hunting Requires an International Response

LEO IGWE

One of the state's overarching obligations is protection of its citizens. Accordingly, a modern state must fulfill—or be made to fulfill—this duty. The state is supposed to ensure the security of lives and property. Discussions on the responsibility to protect human lives have mainly focused on four key areas: genocide, war crimes, ethnic cleansing, and crimes against humanity. In 2005, the United Nations accepted the responsibility and will to act in situations where states fail in their duty to protect their citizens. The United Nations is committed to addressing these areas of concern and to taking protective and preventive measures. However, one phenomenon will require transnational attention and remedies: witch hunting.

Unfortunately, no mention has been made of witch hunting and other atrocities that are committed in the name of witchcraft and occult fears. There was no reference to the obvious lack of political commitment to protecting accused witches and to preventing violence linked to witchcraft beliefs, whether actual or perceived. In other words, member states of the United Nations have not deemed it worthwhile to address, at the highest level, crimes that are committed against alleged witches worldwide. This global moral failure and disappointing oversight must be urgently addressed.

There is overwhelming evidence that states are unable to protect their citizens from accusations of witchcraft. The United Nations needs to step in to fill this gap and rectify this dereliction of duty by its member states. For instance, like war criminals and perpetrators of ethnic cleansing, witch hunters take actions that undermine peace and security in various countries. They perpetrate egregious human rights violations and atrocious and horrific crimes with impunity. Accusers attack suspected witches in the middle of the night; they beat them up or murder them in cold blood. Witchcraft exorcists shackle, starve, and assault suspected witches. The victims are men or women, children or elderly persons, including people living with disabilities. Witch hunters destroy the houses and belongings of alleged witches and subject them to trial by ordeal. This often involves forcing them to drink poisonous concoctions that sometimes lead to death or serious injury.

Like war criminals and perpetrators of ethnic cleansing, witch hunters take actions that undermine peace and security in various countries.

For instance, as I write this piece, the fate of seventy-year-old Auntie B, a Nigerian woman from Edo State in Southern Nigeria, hangs in a balance. Auntie B is a widow from Idumoza, Irrua, in Esan Central in Edo state. She was accused of being responsible for the death of a child. According to local sources, the woman was twice alleged to have harmed children through occult means. In the first instance, a child said before his death that the auntie gave him some food to eat. People suspected that some magical substance in the food led to the death of the child. The case was reported to the elders of the community. But the elders dismissed the case on the grounds that the matter was not brought to them to consider when the child was still alive.

Not long after this child passed away, another child took ill in the community and also claimed that the same auntie had given him something to eat. That matter was reported to the elders. This time, the elders ruled that the woman should be taken to drink a magical potion containing toxic substances. Those who wanted to administer the substance asked the accusers to pay 50,000 naira (USD $150), but the accusers could not afford the fee. Auntie B therefore did not drink the substance, and she is temporarily out of danger.

Auntie B continues to live in fear because she could, at any time, be attacked or killed by her accusers. Killing an alleged witch is considered a form of community service, a way to avenge and neutralize the source of danger to the

community. Auntie B's village, Irrua, is near the Ozalla community, where at least twenty accused persons died after drinking concoctions under similar circumstances in 2004. Those who perpetrated the crime have not been brought to justice because powerful people (including an ex-military officer) were said to be behind the accusations and deaths of the alleged witches.

In Ghana and Burkina Faso, there are makeshift shelters where alleged witches take refuge. Hundreds of alleged witches, mainly women, who fled their homes and communities after being accused of perpetrating occult harm live there. In Ghana, these shelters, popularly known as witch camps, predate colonialism. In fact, in recent years the government of Ghana has threatened to close down these witch sanctuaries instead of tackling witchcraft allegations that force people to flee their homes and communities. Suspected witches are treated as undeserving of state protection in Zambia, Zimbabwe, Malawi, South Africa, Kenya, Uganda, and Tanzania.

Meanwhile, it is not only in Africa that states have failed in their responsibility to protect citizens who are accused of witchcraft. On the Indian subcontinent and Oceania, alleged witches suffer a similar fate. Suspected witches are targets of mob violence and extrajudicial killings. In India, it has been reported that four persons who were suspected of practicing witchcraft or black magic have been murdered in the village of Jharkhand in the district of Gumla. Their killers stormed their homes in the early hours of the morning, dragged the alleged witches to the village square, and lynched them. Suspected witches are subjected to similar horrific abuses in Nepal and Papua New Guinea.

In many cases, these atrocious crimes happen near police stations or offices of provincial or municipal authorities. In fact, suspicions of witchcraft frequently *begin* among police officers and other state security agents, so no arrests are made. In the situations where some of the attackers *are* arrested, they are seldom successfully prosecuted. Witnesses are afraid to come forward to testify against witch killers, because they are often persons in stronger socio-cultural and political positions with the means to victimize those who testify against them. In many countries, witchcraft allegation trumps the state's responsibility to protect its citizens.

A "witch" shelter in Ghana. Photo from Vice News.

Killing an alleged witch in Nigeria is considered a form of community service, a way to avenge and neutralize the source of danger to the community.

Without an effective mechanism to tackle witch hunters and address horrific crimes linked to witchcraft beliefs, the transnational epidemic of witch persecution and killings will continue. The United Nations needs to act quickly to protect alleged witches and prevent witch hunting and witch cleansing in communities worldwide. The United Nations needs a mechanism that will enable it to sanction member states that are unable to fulfill their responsibility to protect alleged witches from attacks, persecutions, murder, trial by ordeal, banishment, torture, and inhuman and degrading treatments. This mechanism will permit the United Nations to reprimand member states that refuse to call to order or penalize those who incite violence against alleged witches, including traditional healers, pastors, *mallams*, and other so-called religious experts. United Nations agencies need to prioritize stemming harmful practices linked to witchcraft beliefs in various sectors so that they can effectively address allegations that affect children, women, elderly persons, and people living with disabilities.

Witch hunts supposedly ended in Europe centuries ago, but vicious crimes linked to witchcraft beliefs have continued in many parts of the world. Witchcraft allegation presents a global challenge. It constitutes a religious, health care, environmental, human rights, and development issue. The United Nations must lead efforts to end witch hunting in this century and ensure that states fulfill their duty to protect alleged witches around the globe. ■

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What We Get Wrong When We Talk about UFOs

FAYE FLAM

If you're reluctant to believe the latest round of media claims that alien spacecraft are lurking around our airspace and surprising Navy pilots, well, you are not alone.

The *New York Times* leaned toward aliens as the reason Navy pilots have seen unexplained flying objects,[1] and the *Washington Post* made a similar case in its news coverage followed by a guest editorial: "UFOs Exist and Everyone Needs to Adjust to That Fact."[2] Others followed suit. Congress is getting classified briefings.[3]

But the pro-extraterrestrial visitation arguments rest on two serious errors. One is the confusion of observations with interpretations, and the other is a slight twist on an error called "god of the gaps." The UFO sightings should be investigated in a scientific way, but the errors are undermining the effort.

The first error made in most of the news coverage was to claim that Navy pilots observed craft that accelerated, rose upward or turned faster than was physically possible. But pilots can't know any object's speed or acceleration without knowing whether these were little things, seen close up, or bigger things that were farther away. It's just one clue that the vocabulary is being blurred.

James Oberg,[4] a former NASA engineer turned space journalist, pointed out: "The bizarre events reported by Navy pilots are not 'observations'; they are interpretations of what the raw observations might mean." To start an investigation from a conclusion rather than from data is, he says, "a recipe for confusion and frustration and dead-ended detours."[5]

The other error cropped up many times when I wrote newspaper stories about evolution. Readers would sometimes write in to argue that if scientists couldn't completely explain some phenomenon—say, the origin of DNA—then it must be an act of God. Theologians sometimes use the term "god of the gaps" to describe the erroneous use of supernatural explanations for natural phenomena that aren't yet explained. The same thing is happening with UFOs, with alien visitors being used to fill gaps in our understanding of the latest detection technology, the sky, and human vision.

The arguments for extraterrestrial UFOs falsely equate the possibility that extraterrestrial life exists with the plausibility that it's visiting us and lurking around, neither cloaking nor announcing itself. Yes, there are a bunch of other planets out there, and some might harbor life forms, but why should we assume they'd want to come here? Are we really that exciting? If we take the possibility of these visitors seriously, we should clean up this place.

Extraterrestrial visitors and gods fall into the same category of unscientific explanation because they haven't shown themselves to humanity in a coherent enough way for claims about them to be tested.

Many UFOs have been explained scientifically. The Air Force conducted studies starting in 1947,[6] and continuing through the 1960s, when, after a congressional hearing, the matter was turned over to a panel of civilian scientists[7] headed by physicist Edward Condon at the University of Colorado.

The committee investigated hundreds of cases and explained most, but not all of them, as reflections, equipment glitches, balloons, astronomical phenomena, and human-built craft. Len Finegold, a retired physics professor, had worked at the university during the Condon investigation and consulted on a few cases. One, he said, involved a woman whose car was mysteriously stopped and then was found to be magnetized. It all sounded very mysterious, but it turned out that some degree of magnetization is a normal result of the manufacturing process.

I asked Finegold whether the lack of explanation for some cases worried him. There are plenty of unexplained phenomena left in physics, he said, "so we're used to that." Mysteries of life may or may not one day be solved, but in the meantime, let's get comfortable with the gaps. ■

Notes

1. https://www.nytimes.com/2019/05/26/us/politics/ufo-sightings-navy-pilots.html
2. https://www.washingtonpost.com/outlook/2019/05/28/ufos-exist-everyone-needs-adjust-that-fact/
3. https://www.politico.com/story/2019/06/19/warner-classified-briefing-ufos-1544273
4. https://www.newsweek.com/former-nasa-scientist-debunks-all-ufo-sightings-blames-many-mundane-space-719507
5. Oberg says it is telling that as our detection technology gets better, rather than seeing crystal-clear images of the fuzzy old twentieth-century UFO observations, we are seeing "a new flavor of 'anomalies' that precisely match the limits of vision of new technologies."
6. https://en.wikipedia.org/wiki/Project_Sign
7. https://en.wikipedia.org/wiki/Condon_Committee

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Haunted Asylums: Imagining Scary Ghosts

In the Middle Ages in Europe, the mentally ill—or those considered so—were kept in various settings, ranging from benign monasteries to "fools' towers" where apparent madmen were housed. In London, the Priory of Saint Mary of Bethlehem evolved into a hospital (now six centuries old) that cared for the poor and aged and "lunatic." *Bethlehem*, often shortened to *Bethlem*, yielded its derogatory nickname *Bedlam*. Synonymous with "madhouse" and "turmoil," it became infamous for unenlightened "treatments" of the mentally ill.

The nineteenth century—coinciding with the development of *alienism*, now known as psychiatry—saw the increased growth of institutions intended for the housing and medical treatment of the "insane." Treatments included pseudoscientific approaches such as phrenology and freezing baths and even the institutionalization of women, who could be committed by a male for simply being considered obstinate. In 1887, journalist Nellie Bly (Elizabeth Cochran Seaman, 1864–1922) skillfully feigned madness to be committed to New York's Blackwell Island asylum. From that undercover role, she penned an exposé that sparked significant reforms (DeMain 2011).

To this background of the pathetic, the irrational, and the bizarre, add the otherworldly concept of ghosts, and we see why "haunted" asylums have become popular visiting places. They particularly attract so-called ghost hunters—wielding equipment that does not detect ghosts but yields various glitches, interpreted with knowing looks as spirits. Such places also lure the general public, seeking what they expect to be spine-tingling thrills. I have investigated three of these, two accompanied by my wife, Diana, who, with tragic irony, is herself waging a valiant fight against dementia. Here is some of what I found.

Haunted Buffalo Asylum

Among Western New York's allegedly most haunted sites stands the architecturally acclaimed H.H. Richardson complex, begun in 1871 and opened in 1880 as the Buffalo State Asylum for the Insane.

Its two 185-foot towers rose from a four-story structure originally flanked on either side by five stepped wards; its female wing was completed in 1895. Based on the humanitarian philosophy of Dr. Thomas Story Kirkbride (1809–1883), one of the foremost insanity theorists of the day, the asylum was intended to provide curative hospitalization for the mentally ill.

Kirkbride was a physician who advocated for the mentally ill. In 1854, he published his influential treatise, *On the Construction, Organization and General Arrangement of Hospitals for the Insane with Some Remarks on Insanity and*

Figure 1. Restored as a hotel, the old Buffalo State Asylum for the Insane is still popularly haunted. (Photo by Joe Nickell.)

Its Treatment. (It was republished in 1880.) While his ideas met with mixed responses, after his first wife died Kirkbride showed remarkable faith in the efficacy of his treatments; he married one of his former patients ("Kirkbride" 2019).

Crowded by a surge in inmates, the asylum's occupancy was eventually exceeded by the thousands. In 1927, half the grounds were lost to a college, and more was claimed by modern buildings in the late 1960s. In 1974, patients were transferred to the new Buffalo Psychiatric Center. From then (until a preservationists' lawsuit in 2008 brought $100 million in state rehabilitation funds), the old Richardson complex was abandoned and fell into decline and disrepair ("Buffalo State Hospital" 2017). (It has now been restored as the eighty-eight-room Hotel Henry Urban Resort Conference Center, which Diana and I have explored—see Figure 1.)

During its long abandonment, it became a spooky place. According to *Weird New York* (Gethard 2005, 250–251): "Not surprisingly, rumors abound that the castlelike structure is haunted by the ghosts of former patients who died there. They are said to roam the grounds frequently and to love most of all the tunnels that lay beneath the buildings, connecting them." Moreover, the "mentally disturbed" are sometimes held to have "a greater tendency" for hauntings because "they have higher functions of the unconscious mind," according to Buffalo ghost walks guide Mason Winfield (Sullivan 2016).

Or as I suspect, people simply imagine them to be especially scary ghosts.

I have traced the abandonment-creates-haunted-place phenomenon many times before. A site without an apparent ghost becomes dark, neglected, run down, taking on the semblance of a still from a Hollywood movie.

The eerie aspect prompts whispers of ghosts, and in time lurid lore develops. With it come dares to explore the "haunted" place, and pranksters may even await those who accept the challenge. In any case, their own flashlights may spark reports of fabled ghost lights. Ghost hunters will record "anomalies" that they themselves may inadvertently cause, and reporters cannot be far behind, collecting stories for Halloween publication.

In Western New York, for example, I encountered this phenomenon at the once-dilapidated mansion of Bellhurst Castle in Geneva, which enticed youth into making it a sort of ghostly playground; the old octagon house now at Genesee County Village in Mumford, which only acquired ghost stories after it fell vacant; and the Van Horn Mansion at Burt, which attracted its first ghosts during a period of abandonment between 1967 and 1970 when, said a volunteer at the historic house, "it did look spooky" (Nickell 2012, 92–93; Winfield 1997). (I was quoted explaining the dynamics of this type of ghost creation in a brief article on the Richardson complex for *Buffalo Spree* magazine, written by skeptical colleague and artist Bruce Adams [2017].)

A young woman who once broke into the deserted Buffalo asylum with friends described it this way: "It looked like someone snapped their fingers and everyone disappeared," leaving behind old medical contraptions and moldering hospital beds.

They saw no ghosts, but it was "really dark" and as a floor partially caved, they started running. "When we saw a sign for the morgue I said, 'Screw this! I need to get out!'" She said she was overwhelmed by fear. "All I can remember were my emotions. I wanted to die." On the other hand, one man who explored there said he felt completely welcome (Constantine N.d.).

Yet again, considering the differences in people, hotel developer Dennis Murphy has spent an impressive amount of time there—during both day and night—but he has not had a single ghostly experience (Fink 2016). That seems to me a very telling fact.

Trans-Allegheny Lunatic Asylum

Unlike the Buffalo State Asylum, now a classy hotel and thus but a shadow of its darker days, West Virginia's Trans-Allegheny Lunatic Asylum (TALA) in Weston offers a real step back in time (see Figure 2).

At almost a quarter mile long, it is among the largest buildings of hand-cut stone in the United States. Construction began in 1858—as with the Buffalo asylum, again following consultations with Thomas Story Kirkbride, at the time superintendent of the Pennsylvania Hospital for the Insane. The initial construction was done by prison laborers, and the facility opened in 1864 ("Trans-Allegheny Lunatic Asylum" 2019).

Although it was originally designed to house just 250 patients "in solitude," by the 1950s overcrowding had reached more than ten times that number. The asylum also had poor sanitation, insufficient lighting and heating, and other problems. After a new psychiatric facility was built, the old asylum was closed in 1994. In 2007, the historic building was auctioned off, and soon evening ghost hunts and tours were being offered. An advertising brochure we obtained on our daytime tour of TALA on September 3, 2017, stated: "Thousands have been committed and unfortunately died at the Asylum. Decide for yourself if they are still occupying the

Figure 2. West Virginia's Trans-Allegheny Lunatic Asylum offers a real step back in time—with alleged ghosts. (Photo by Joe Nickell.)

historic wards and treatment rooms" ("Trans-Allegheny Lunatic Asylum" 2017).

We took the expansive "historic" tour ($30 each) that lasted an hour and a half and wound through four floors of patient rooms, the apothecary, the morgue, and elsewhere. Sometimes I amused myself by surreptitiously dropping back and producing "orb" photographs. (Many ghost hunters consider this feature evidence of the paranormal. However, the appearance of radiant spheres hovering in space simply results from the camera's flash rebounding off specks of dust, droplets of moisture, or the like [Nickell 2012, 103]. I make such photos deliberately by first scattering dust in the air.)

Like ghost hunters everywhere, those who "investigate" at TALA are on a fool's errand. Based on glitch-prone equipment that does not, in fact, detect ghosts, their quest is another pseudoscientific hunt for anomalies. In addition to orbs, the ghost buffs report "unexplained lights, ghostly footsteps, eerie voices, [and] the unshakeable feeling of being watched" (McCormick 2016). The word *unexplained* is instructive, because this is an example of the logical fallacy called "arguing from ignorance" ("we don't know what caused something; therefore, it was a ghost"). One cannot draw a conclusion from a lack of knowledge. Besides, an *unexplained* event may not be *unexplainable*, after all (Nickell 2012, 269).

Moreover, as with the previously discussed Buffalo State Asylum, TALA appears to be yet a further example of the abandonment-creates-haunted-place phenomenon. Before its closure in 1994, there were few, if indeed any, recorded accounts of the place being haunted. But after it became abandoned, dark, neglected, and run-down, it was just the kind of place to invite whispers about ghosts—its spookiness enhanced by folklore about the tormented former patients.

If that were not enough, the "investigations" by such TV shows as *Ghost Hunter*s (in 2008) and *Ghost Adventures* (in 2009) did the rest. The latter was a "live televised seven-hour investigation on Halloween Eve"—just the kind of hype and hucksterism to hustle and hoodwink haunting aficionados. Hence, we learn that:

> The lonely spirit of a young girl named Lily wanders the halls, looking for a playmate. She makes herself known to visitors in several ways, including interacting with a menagerie of toys set out in the room dedicated to her memory. But Lily isn't the only child at TALA—ghosts of many of the hospital's younger residents haunt the upper floors, sometimes following visitors throughout the building, even following them home. (Olsen 2016)

According to ghost hunter/writer Eric Olsen (2016), "Lily's life story is ambiguous at best." She came to life—so to speak—on a 2010 episode of *Ghost Stories* when a self-claimed "psychic" named Tammy Wilson "discovered" the alleged child. Yet so-called psychics are often characterized by fantasy-proneness (Nickell 2012, 120–121). Soon, others were encountering Lily or "Lilly," but that is attributable to the power of suggestion (Nickell 2012, 352–353).

Other "versions" of Lily's story (what folklorists term *variants* and cite as evidence of folkloric dissemination) have been given. Indeed, one *intentionally fictional* story raced across the internet, mistakenly termed a "historical account." Olsen (2016) asks rhetorically: "Where is the truth, if any, in Lily's story? Are there slivers of fact intermingled with these elaborate accounts? Did she die there? Did she ever live there?"

"Lily" is as unlikely to be real as any of the other "ghosts" at this or any other site. Ghost hunters and raconteurs notwithstanding, science has never authenticated a single ghost.

Alcatraz Hospital

Although not an asylum per se, Alcatraz Federal Penitentiary nevertheless served that purpose for many of the incorrigible prisoners and the criminally insane who were incarcerated there. Located on a small, stark island in San Francisco Bay, it was converted from a fort to a maximum-security prison in 1933 and remained a foreboding place until it closed in 1963. It is now a national park.

When I arrived there with investigator Vaughn Rees in 2010, I already had a connection to the place. As a boy of eleven, I used to see in my hometown of West Liberty, Kentucky, the man who would become, in 1962, the only one ever to escape from "The Rock" and unquestionably reach the mainland alive: John Paul Scott. (In early 1957, Scott, his brother, and another man had attempted a nighttime bank burglary in an adjacent county, and Scott was shot twice in the process. The trio fled after wounding the sheriff in the knees with a spray of submachine-gun fire, and I still vividly remember news of the manhunt that ended with the gang's capture.)

Scott, who had been a lab technician in our town's hospital, apparently went on to work at the Alcatraz hospital as well. For his planned escape with a fel-

Figure 3. Alcatraz Hospital was located in the infamous maximum-security prison that housed incorrigibles and the criminally insane. (Photo by Joe Nickell.)

low prisoner, Scott secretly improvised life preservers by stuffing prison shirts with *inflated rubber gloves* stolen from the infirmary! (Nickell 2012, 142–143.)

Throughout the prison's use, a fully functioning hospital was housed within. According to an old Bureau of Prisons Bulletin (quoted in "Inside Alcatraz" 2014):

> The Alcatraz Hospital, adjacent to the main cell house, is equipped with modern x-ray and physical therapy apparatus, operating theater, laboratories, and dental unit, and contains words and individual rooms for the treatment and convalescence of inmate patients. It has been certified by the American College of Surgeons and compares favorably with the up-to-date hospitals and clinics in the free community.

The hospital was staffed by a general practitioner. Other needed physicians, nurses, etc., were brought to the prisoners, rather than the other way around, to eliminate the chance of escape.

In addition to the several hospital ward cells (each of which could hold up to six men), there were two psychiatric observation rooms—which inmates derisively called "bug cages." Mental illness was far from rare:

> The number of prisoners who became mentally ill during their time on Alcatraz is hard to pin down: the official estimate of Warden James A. Johnston was two percent, but former inmate Jim Quillen said it happened "a lot more than that—all the time." Many aspects of life on Alcatraz could drive inmates over the edge: the monotony, the lack of privacy, the threat of violence, even the knowledge that San Francisco and freedom were so close but impossible to reach. However, some prisoners also tried to fake insanity, hoping for a chance to be transferred to another institution—anywhere other than Alcatraz. ("Inside Alcatraz" 2014)

Of course, claims that Alcatraz is haunted (Vercillo 2008; cf. Nickell 2012, 141–146) extend to the hospital—even though it has generally been closed to the public. For sharing my knowledge of John Paul Scott, I was generously extended a special privilege—a young volunteer fetched a huge batch of keys and took Vaughn and me into that area.

Sounds of supposed trespassers in the hospital have reportedly caused park rangers to rush there, only to find the area deserted (Vercillo 2008, 70), the implication being that ghosts were responsible. However, sounds travel, and their location can be mistakenly perceived, as rangers well know. Despite rumor and hearsay, most of them do not claim ghost experiences at Alcatraz (Nickell 2012, 144). The assertion by Rosemary Ellen Guiley (2000, 3) that "Men's voices have been heard in the hospital ward" fails to inspire confidence, because, if there were a credible source, why use the passive voice, which aids in concealing the source?

Vercillo (2008, 70) suggests that the various sounds may be from "the ghost of Robert 'Birdman' Stroud"—the amateur ornithologist played by Burt Lancaster in the 1962 movie *The Birdman of Alcatraz*. After his notoriety originated at Leavenworth Penitentiary and became a nuisance to officialdom, Stroud was transferred to Alcatraz in 1942. According to "Inside Alcatraz" (2014), Stroud was "a hypochondriac as well as an extremely disruptive inmate" who once incited a riot in cellblock D. He did spend eleven years confined to the hospital infirmary to separate him from the general population.

Some reportedly claim to hear "the distinctive whistling birdcall" the Birdman allegedly made (Vercillo 2008, 70), but how would anyone know what that sounded like? The claim is effectively refuted by the fact that *Stroud never kept birds at Alcatraz*. He left Alcatraz in 1959 and died at a medical center in Illinois in 1963. There is apparently no recording of such a call, so while "some say" they hear it, and Vercillo insists that "the cries of living birds on the island can't cover" Stroud's call (2008, 70), reasonable people will not be convinced by such uncorroborated assertions—apparent fakelore. On my visit to where Stroud lived, I neither saw nor heard any ghostly activity.

I discuss other ghost claims at the old prison in my book *The Science of Ghosts* (Nickell 2012, 141–142). The alleged spirits of Alcatraz are no more real than those at the Buffalo State Asylum or the Trans-Allegheny Lunatic Asylum. Superstitious belief, romantic attitudes, and imagination all play a role in supposed hauntings. While some persons report experiencing ghostly dramas, they are imaginings of this world—not another one. ■

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Whither Chiropractic?

Chiropractic has come a long way since its creation in 1895, but where is it going? Its inventor, Daniel David Palmer, was a grocer and magnetic healer who didn't have the benefit of X-rays and didn't know about the germ theory of disease. Based on pseudoscientific and metaphysical ideas, chiropractic has been trying to establish scientific respectability for well over a century but has failed. The evidence for its safety and effectiveness remains questionable, yet it has developed into perhaps the most widely accepted form of alternative medicine, and new chiropractic offices are popping up everywhere. Critics have called for it to be abolished, and some chiropractors say they are trying to reform it from within.

It is safe to predict that complementary and alternative medicine (CAM) will always be with us as long as humans display human nature. After all, homeopathy is still thriving despite being thoroughly discredited by Oliver Wendell Holmes as early as 1842, despite being tested and proven not to work, and despite being totally incompatible with well-established scientific knowledge. So I expect chiropractic to persist. But in what form? There are many possible paths that chiropractic might follow. Will it still be as widespread a century from now? And if so, what will it look like?

The evidence for chiropractic's safety and effectiveness remains questionable, yet it has developed into perhaps the most widely accepted form of alternative medicine.

Palmer believed that all body functions were controlled by a vitalistic spirit he called "Innate." He proclaimed that spinal subluxations caused 95 percent of all disease by interfering with Innate, and that subluxations of other bones caused the remaining 5 percent. He said his inspiration for chiropractic was received from "the other world," and it was bolstered by his belief that he had restored a deaf janitor's hearing by adjusting his spine. He was wrong on all counts.

Chiropractic was soon divided into two camps. The "straights" are purists who follow Palmer's original ideas and limit themselves to correcting subluxations. The "mixers" are open to other ideas and have adopted conventional techniques from physical therapy, such as exercise, massage, ultrasound, and moist heat. Some mixers adopt techniques from alternative medicine, such as nutritional supplements, acupuncture, homeopathy, and herbal remedies. And today we have other variations, such as craniosacral therapy and upper cervical chiropractic (which claims to correct everything downstream by adjusting only the top vertebra in the neck).

The Subluxation Myth

The concept of subluxation underlies chiropractic theory. Medical subluxations are real. They are partial dislocations of a joint and are readily seen on X-ray. Originally, chiropractors thought they were correcting "chiropractic subluxations" that were actual bones out of place (BOOP); they assumed they would be obvious on X-ray and convinced themselves they could identify them on X-rays. But two chiropractors would identify subluxations at different levels on the same X-ray. They couldn't agree and had to admit that the bones were not really out of place, so they had to develop a new definition of subluxation.

The World Health Organization (WHO) defines the chiropractic vertebral subluxation as "a lesion or dysfunction in a joint or motion segment in which alignment, movement integrity, and/or physiological function are altered, although contact between joint surfaces remains intact. It is essentially a functional entity, which may influence biomechanical and neural integrity." And the National Board of Chiropractic Examiners stated in 2014, "The specific focus of chiropractic practice is known as the chiropractic subluxation or joint dysfunction. A subluxation is a health concern that manifests in the skeletal joints, and, through complex anatomical and physiological relationships, affects the nervous system and may lead to reduced function, disability, or illness." Other organizations have come up with other equally vague definitions. Real medical illnesses are usually much better defined. Anyone can diagnose diabetes on the basis of blood sugar measurements or anemia on the basis of hemoglobin levels in the blood. But you would have to be a chiropractor to use these definitions of subluxation to diagnose a subluxation. They amount to gobbledygook designed to provide an excuse for chiropractors to "adjust" the spine of any patient they want to treat.

Eventually even some chiropractors came to question the existence of the chiropractic subluxation. In 2005, a group of chiropractic researchers reviewed all the published scientific evidence for the subluxation concept. They concluded:

> No supportive evidence is found for the chiropractic subluxation being associated with any disease process or of creating suboptimal health conditions requiring intervention. Regardless of popular appeal this leaves the subluxation construct in the realm of unsupported speculation. This lack of supportive evidence suggests the subluxation construct has no valid clinical applicability.

Real medical illnesses are usually much better defined. Anyone can diagnose diabetes on the basis of blood sugar measurements or anemia on the basis of hemoglobin levels in the blood.

In an ideal, rational world, perhaps this would have been the death knell of chiropractic. But of course it wasn't. There are too many chiropractors whose livelihood depends on it, and patients have been trained to expect their chiropractor to find a misalignment of the spine and correct it. There are also regulatory constraints: the word *subluxation* is enshrined in legislation for Medicare reimbursement and in health insurance company policy. Chiropractic has become so widely accepted that even the government is hiring; chiropractic clinics have been established in VA and military medical facilities.

Spinal Manipulation Therapy

Chiropractic's main claim to fame is spinal manipulation therapy (SMT). But SMT is not uniquely chiropractic; it is also used by physical therapists, doctors of osteopathic medicine (DOs), and some medical doctors (physiatrists, physical medicine and rehabilitation specialists). SMT is somewhat effective for low back pain, but it is not more effective than other standard treatments, such as analgesics, physical therapy care, exercises, and back school (practical training in proper lifting and other ways to minimize stress on the back). So it is a reasonable choice but can't be recommended as the superior treatment of choice.

For neck pain, SMT combined with exercise has been shown to benefit some patients, but manipulating the neck carries a risk of stroke, paralysis, and even death from a tear in a neck artery. Chiropractors deny the risk, and it is certainly very small, but there is credible evidence, including "smoking gun" cases where the patient suddenly developed symptoms of an arterial dissection on the chiropractor's table during neck manipulation. Gentle mobilization can be effective and is much less likely to cause a stroke.

Claims that SMT benefits conditions other than low back pain and neck pain are not supported by scientific evidence. It is not effective for asthma, infant colic, ear infections, sleep and feeding problems, health maintenance, or indeed for any non-musculoskeletal condition. Chiropractors treat children whose spines have not yet fully developed. They sometimes treat infants immediately after birth in the delivery room. There is no accepted indication for offering chiropractic treatments to young children, and many experts consider it a form of child abuse.

Osteopathic medicine developed around the same time as chiropractic, but it evolved very differently. It was also based on spinal manipulation therapy; however, unlike chiropractors, DOs have accepted modern scientific medicine. They have joined the mainstream and are considered equivalent to MDs. Schools of osteopathy teach SMT, but DOs take the same residencies and specialty training and have to pass the same exams as MDs. Many of them seldom use SMT after graduation.

Chiropractors Going beyond Chiropractic

Because chiropractic is not a science-based practice, many chiropractors' education has not prepared them to understand science. The research published in chiropractic journals tends

to be of low quality. And many chiropractors show poor judgment in gullibly adopting every new quackery that comes along, such as spinal decompression machines, electrodermal diagnostic machines, and untested stem cell treatments. A large percentage of American chiropractors use applied kinesiology, a bogus muscle-testing procedure.

Chiropractors have tried to expand their scope of practice. Some have set themselves up as allergy specialists, using the bogus Nambudripad's allergy elimination technique (NAET) devised by a chiropractor who is also an acupuncturist. Some run clinics to treat diabetes, even claiming to "reverse" diabetes. Some offer advice on nutrition and all aspects of wellness. Some have tried to rebrand themselves as primary care physicians, a role their training does not equip them to fill. Some want to do sports physicals and act as team physicians. It seems to me all this amounts to a tacit admission that they have realized chiropractic is inadequate.

Can Chiropractic Be Reformed?

Some chiropractors are doing their best to follow scientific principles. They reject the subluxation concept and limit their practice to short-term, evidence-based treatment of selected musculoskeletal problems. They would like to make us think there is a reform movement underway, but I haven't seen any indication that chiropractic as a whole is following their lead. From reviewing chiropractic websites, it seems that most chiropractors are firmly ensconced in the old ways and embrace one or more quack methods.

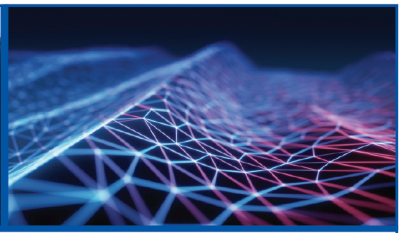
If they were serious about reform, chiropractic organizations could start by disciplining any of their members who treat young children, who claim to be correcting subluxations, who use applied kinesiology, or who fail to support immunizations. There have been some promising developments in Australia. For instance, the Chiropractic Board of Australia has advised chiropractors not to use spinal manipulation under the age of two pending an independent review of the evidence. That's a start, but there's much more that could be done.

The problem with reforming chiropractic is that it becomes indistinguishable from what physical therapists do (except that physical therapists' training and scope of practice are more extensive). I see no reason to prefer a reformed chiropractor to a good physical therapist who offers SMT. So why do we need chiropractors? They are often very skilled in SMT, so perhaps they could be retrained with a new title, becoming physical therapists for the spine. I won't try to predict what will happen with chiropractic, but I can confidently predict that skeptics will never stop supporting science and critical thinking. ■

Note

For more information, see the Chirobase website operated by Quackwatch's Dr. Stephen Barrett and skeptical chiropractor Samuel Homola, https://www.chirobase.org, and my video lecture on chiropractic on YouTube at https://www.youtube.com/watch?v=MO84J8xtOxI.

SCIENCE AND THE PUBLIC



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[BEHAVIOR & BELIEF

STUART VYSE

Stuart Vyse is a psychologist and author of *Believing in Magic: The Psychology of Superstition*, which won the William James Book Award of the American Psychological Association. He is a fellow of the Committee for Skeptical Inquiry.

An Adventure in Peer Review

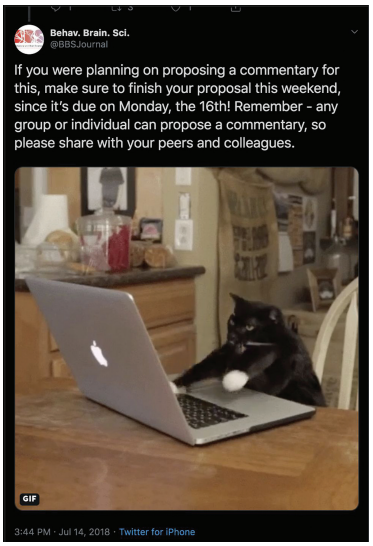
Imagine the following scenario: Two social scientists write an article proposing a provocative new theory about women's values, preferences, and the very essence of what it means to be a woman. The authors make some logical arguments, cite publicly available data, and, in support of each point, include several quotes—let's say forty quotes altogether—from published works by a variety of women. The article is submitted to a prestigious journal, goes through the peer review process, and is accepted for publication. However, after the article is published online—but before it appears in print—another scholar points out that at least ten of the forty quotes are not from reliable sources and are very likely written by men, not women. What should happen to the article?

I can imagine three possible courses of action, although there are many others:

1. *Nothing happens.* The article is allowed to stand as originally published with the voices of men substituted for those of women in some cases.

2. *Remove suspect quotes.* If convincing evidence is presented that the ten quotes are unreliable, ask the authors to remove those quotes from the article. The quotes were merely supporting data, and given that the authors have other evidence and many remaining quotes to back up their arguments, a corrected version of the article could be allowed to stand.

3. *Retract the article.* This most severe action of pulling the article completely might be justified if the authors knew about the controversial nature of the sources and did not acknowledge it in the article, which seems unethical at best and fraudulent at worst.


Behav. Brain. Sci.
@BBSJournal
If you were planning on proposing a commentary for this, make sure to finish your proposal this weekend, since it's due on Monday, the 16th! Remember - any group or individual can propose a commentary, so please share with your peers and colleagues.
GIF
3:44 PM · Jul 14, 2018 · Twitter for iPhone

The foregoing is not just a thought experiment. Recently, something very like it happened. The arguments being made were about the nature of autism, not women, and I and eight other colleagues played the role of the scholar pointing out the error in the accepted article. Unfortunately—in my view—the eventual outcome was very close to *Nothing happens*. As a result, I believe this episode has important implications for the status of the peer review process and the creeping acceptability of pseudoscience. But I am getting ahead of myself. Here's what happened.

Once upon a Saturday Night

One Saturday night in July 2018, I was at home alone aimlessly poking at my computer when an eye-catching GIF of a cat furiously typing on a laptop came across my screen. The GIF was attached to a tweet sent from the account of the journal *Behavioral and Brain Sciences* encouraging authors to write commentaries to accompany an article that had been accepted for publication.

Behavioral and Brain Sciences (*BBS*) is a prestigious journal published by Cambridge University Press in a unique open commentary format. The journal accepts target articles that are typically relatively long and substantive analyses of some issue in cognitive science, psychology, or neuroscience. Once the article is accepted, other scholars are invited to write short commentaries on the target article. Finally, once all the commentaries have been received and accepted for publication, the authors of the target article write a response to the commentaries. The resulting publication—target article plus commentaries plus responses to commentaries—is often quite long, and the journal's format allows for an unusually deep exploration of innovative ideas. The list of people who have published target articles includes B.F. Skinner, Steven Pinker, Noam Chomsky, Daniel Dennett, and Keith Stanovich.

On the Saturday night I saw the cat GIF, I noticed that the target article was "Being vs. Appearing Socially Uninterested: Challenging Assumptions

about Social Motivation in Autism" by Vikram K. Jaswal and Nameera Akhtar (2019a). I did not recognize the authors, but because the title was intriguing and I had recently written about autism for Skeptical Inquirer, I clicked on the link.

What I found was quite a surprise. The authors proposed that the lack of social engagement shown by people with autism was not indicative of their desires. People with autism want to be more social—they simply face different barriers to expressing social behavior than neurotypical people. I had my own thoughts about the authors' thesis, but that's not what I found surprising. In support of their theories, Jaswal and Akhtar quoted from published articles and books written by people with autism. Naturally, they cited the authors by name, and although I did not know all of them, I recognized a few: Ido Kedar, Tito Mukhopadhyay, and Sue Rubin. Several of the quotes Jaswal and Akhtar used were from well-known users of either the discredited communication technique facilitated communication (FC) or its more recent variant rapid prompting method (RPM).

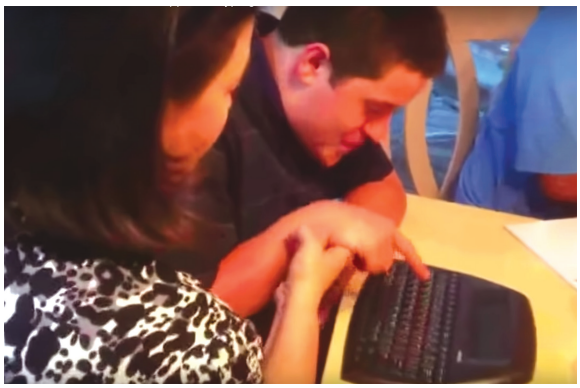
As readers of this column are aware, FC is a communication method based on the theory that, rather than being cognitively impaired, many people with autism are not physically capable of making the movements required for communication. FC involves the steadying hand of another person—a facilitator or communication partner—placed on a hand, arm, or other body part of the nonspeaking person as they type with one finger on a keyboard. When used with nonspeaking individuals with autism, tests of FC have repeatedly shown that the words typed out are authored by the communication partner, not by the person with autism (Mostert 2001; Mostert 2010). Many double-blind studies have demonstrated with remarkable consistency that when asked simple questions, the nonspeaking person produces the correct answer only when the communication partner also knows the answer. At least twenty professional, educational, and advocacy organizations worldwide, including the American Psychological Association, the American Pediatric Association, and the American Speech-Language-Hearing Association, have issued policy statements against the use of FC (Behavior Analysis Association of Michigan N.d.).

The newer method, RPM, involves the nonspeaking person pointing at a letter board that is held in the air by the communication partner. As is often the case with FC, the verbally fluent RPM communication partner reads out what the nonspeaking person has typed. The proponents of RPM have so far avoided testing for authorship, but the similarity of RPM to FC has prompted the American Speech-Language-Hearing Association (ASHA) to issue a statement discouraging its use, stating "information obtained through the use of RPM should not be assumed to be the communication of the person with a disability" (American Speech-Language-Hearing Association 2018).

I was surprised that Jaswal and Akhtar used quotations from these well-known users of FC and RPM, but I was also concerned that they said nothing about how those quotes were obtained. As a result, a statement attributed to a book coauthored by Barb Rentenbach—who is nonspeaking—and her FC facilitator, was placed on equal footing with one by Gillan Drew, who is a very fluent speaker. It seemed extremely unlikely that the authors—experts in autism—were unaware of the criticisms of FC and RPM, and as a result, the lack of any mention of how these quotations were obtained seemed like a breach of ethics to me.

I was somewhat shocked by the boldness of Jaswal and Akhtar's move. I imagined many peer reviewers and potential commentary writers would recognize some of the same FC and RPM users I had. For example, Sue Rubin, who attended Whittier College with her FC facilitator and was awarded a BA in Latin American history, was the star of the Academy Award nominated film *Autism Is a World* ("About Me" N.d.). She is a genuinely famous FC user. But somehow the manuscript had gotten through peer review.

My first step was to email the editor of *BBS* that very Saturday night. I knew the editor a little and had recently served as a peer reviewer on a different manuscript submitted to the journal. I acknowledged that mine might be an annoying email to receive, but I had serious concerns about the article. The editor wrote back the next day to say



A young man using facilitated communication with a keyboard. (Source: YouTube.)

Soma Mukhopadhyay, the inventor of the rapid prompting method, demonstrating the technique with a student. Mukhopadhyay holds the letterboard in the air as the girl points. (Source: YouTube.)

that the article had been peer reviewed by experts, revised, resubmitted, and finally accepted for publication. The editor did not dismiss my concerns but said this was not a case where retraction was warranted.

I had not actually mentioned retraction in my email. Rather, I suggested the article should not have been published in its current form—something akin to option two above. Nonetheless, the editor said my issues with the manuscript might make a very good commentary on the Jaswal and Akhtar article and encouraged me to submit one. Although submitting a commentary seemed like a rather weak response to the problem, I decided it was better than not writing one and potentially letting the use of suspect quotes go undetected. But I felt like I needed backup. I sent a quick email explaining the situation to a small group of academics who are working to discourage the use of FC and RPM (see Vyse 2018a) and asked them if they would be willing to sign on as coauthors of a commentary to accompany the Jaswal and Akhtar article. To my gratification, within twelve hours I had positive responses from eight people willing to join the effort: Bronwyn Hemsley, Russell Lang, Scott O. Lilienfeld, Mark P. Mostert, Henry D. Schlinger Jr., Howard C. Shane, Mark Sherry, and James T. Todd.

As it turns out, the process of getting a commentary accepted in *BBS* is fairly onerous. The first step is to write a very brief proposal—basically an abstract of what you intend to say in the commentary. This proposal goes through a first-round of review and can be rejected at this early stage. If accepted, you go on to write the commentary, which is limited to 1,000 words, and submit it for review. Again, a commentary can be rejected at this second review point, but if accepted, it eventually appears following the printed version of the target article.

By the time I had decided to take on this project and had acquired my coauthors, the deadline for the short commentary proposal was approximately twenty-four hours away. Looking a bit like the cat in the GIF, I quickly pounded out a proposal with the help of those colleagues who were able to respond on such short notice. Before long, we heard that we had made it through the first hurdle and were given the okay to write our commentary.

To prepare for the commentary, we entered every quote used in Jaswal and Akhtar's target article into a spreadsheet. There were forty quotes in total. Many of the quotes were obviously from individuals who had speech, but in cases where people appeared not to use speech, we did our best to track down the sources cited. Together we made our best determination of the methods used to obtain the quotes, which, in a few cases, was impossible given the publicly available information. Ultimately, we judged that at least ten of the forty quotes were suspect. We labeled seven of the quotes FC or RPM, and three we identified as "likely FC." Having completed the spreadsheet, we posted it and a brief introduction to our analysis on the Open Science Framework where anyone could look at them, and we invited discussion of our findings. The link to the files can be found in Vyse (2018b). As of this writing, no one has commented on our analysis.

The authors, who one would imagine knew what they were doing, simply attributed the quote to Gralow and did not reveal the actual source.

It Gets Worse

When we looked into the quotes, the situation got a little worse. One of the quotes of people with autism was cited as "(Gralow 2008)." As it turned out, Christine Gralow was a special education teacher who worked with children with autism, and the source that Jaswal and Akhtar cited was an op-ed she wrote for the *New York Times* online. As far as we could tell, Gralow did not identify as being on the autism spectrum, and when we checked the source, it became clear that the quote that Jaswal and Akhtar attributed to her was not something she said. A Google search using the quoted phrase revealed that it actually came from a commenter, "jaymee," on the *New York Times* website, but, of course, because it is the internet, there is no way to know who "jaymee" is. The authors, who one would imagine knew what they were doing, simply attributed the quote to Gralow and did not reveal the actual source.

We described this as an error in our spreadsheet accounting of the quotes, but because our space was limited and this error was not central to our critique of the use of FC and RPM, we did not mention it in our commentary. I did, however, inform the *BBS* editor of this mistake in a separate email sent at the time we submitted our commentary. Nonetheless, the quote remains in the printed version of the article, with the original incorrect citation (Jaswal and Akhtar 2019a).

Eventually our commentary was accepted for publication, and approximately a year after the Jaswal and Akhtar target article was posted online, the final version appeared, followed by thirty-two commentaries and the authors' responses to the commentaries. Due to the tyranny of the alphabet and my being the first author, our commentary was the thirty-first of thirty-two, appearing on page 48. As we feared, none of the other commentary authors expressed any concern about testimonies derived from FC and RPM. One commentary pointed out that the use of autobiographies by people with autism produced a bias in favor of "cognitively able autistic people, but also, by definition, represent the experiences of people who are motivated to share their stories with others" (Fletcher-Watson and Crompton 2019, 20). But none of the commenters mentioned that the testimonies derived from FC or RPM were not reliable. Indeed, our commen-

tary was the only place in the entire fifty-nine-page document were these discredited techniques were mentioned by name.

Jaswal and Akhtar responded to all the commentaries at the end of the document, and as might be expected, they defended their use of the suspect quotes. Jaswal and Akhtar pointed to evidence that individual FC and RPM users had learned to type independently and that FC users in naturalistic observations had said unexpected things or disagreed with their facilitators. In addition, Jaswal reported timing and accuracy data that he had collected on an RPM user that Jaswal and Akhtar said was so fast (approximately one letter per second) that it was unlikely that he had been cued by someone else. Unfortunately, none of the evidence they cited in defense of FC and RPM was a direct test of authorship, and some was anecdotal. Finally, none of the evidence Jaswal and Akhtar cited bore directly on the question of whether the quotes they used in their article were valid. Opposed to their view are many simple controlled tests published in peer-reviewed journals showing authorship by the facilitator and not by the person with disability.

Due to the tyranny of the alphabet and my being the first author, our commentary was the thirty-first of thirty-two.

Jaswal and Akhtar's title for the section replying to us was "Should Testimony from Some Autistic People Be Excluded?" (Jaswal and Akthar 2019b, 57), suggesting that Jaswal and Akhtar had either missed our point or simply dismissed it. Our entire purpose in writing the commentary was to argue that the voices of people with autism had already been excluded—or, more precisely, had been drowned out by the voices of their facilitators and communication partners.

Jaswal and Akhtar's entire response to our commentary can be found in the note at the end of this article.[1]

Adventures in Peer Review

To me, this incident raises several questions about the peer review process. Although there are some who would think the Jaswal and Akhtar article should be retracted, I would have been satisfied if the questionable quotes had been removed—preferably as a result of the peer review process and prior to publication online. Although I do not agree with every aspect of the article, I believe the ideas the authors presented are deserving of publication. I am very glad that we had the opportunity to present our commentary so that the concern was raised, but as the scenario I constructed at the beginning of this article is meant to suggest, I suspect that in many other areas of research the issues we raised would not have been taken so lightly.

Part of the problem may be the process of choosing peer reviewers. When a target article is submitted to *BBS*, the authors are asked to provide the names of potential reviewers and commentators. Although this system has been used for years by several journals, in this case it may have gone awry. As should be obvious by now, autism is a highly politicized topic. If the authors suggested reviewers who were either supporters of FC and RPM or unfamiliar with the users of the techniques quoted in the article, that might explain the outcome. Whatever happened here, had I, one of my coauthors, or one of the many other scholars who question the use of FC and RPM been a reviewer on this manuscript, the problem might have been spotted much earlier. In which case, our commentary and this article would not have been necessary.

What Responsibility Do Jaswal and Akhtar Have?

With respect to Jaswal and Akhtar, I come back to two main issues and one smaller one:

1. In my view, Jaswal and Akhtar should not have used testimony derived from these discredited methods. I want to stress again that this is not just a small controversy. In addition to the policy statements of many professional organizations, FC has been widely covered in the popular press. For example, see recent articles in *Slate* (Auerbach 2015, "Facilitated Communication Is a Cult That Won't Die") and *Forbes* (Salzberg 2018, "Facilitated Communication Has Been Called an Abuse of Human Rights. Why Is It Still Around?").

I find it hard to understand why researchers would use such widely discredited evidence in a submission to a prestigious journal. Especially if—as was the case here—it was unnecessary. In their response to our commentary, Jaswal and Akhtar state, "Our arguments about social motivation in autism would have been the same had we limited ourselves to quoting only speaking people" (Jaswal and Akhtar 2019b, 57), which raises the question of why they used the quotes from people using FC and RPM in the first place.

2. I believe Jaswal and Akhtar should have been far more open about these matters. I think it was unacceptable to simply use quotes derived from FC and RPM without acknowledging (a) the method by which the quotes were obtained and (b) the controversy surrounding those methods.

3. A smaller item: I believe Jaswal and Akhtar should not have used the Gralow/jaymee quote given its indeterminate origin, but at very least, they should have identified it more accurately.

Finally, in Jaswal and Akhtar's defense, I think they were ill-served by the peer review process. Ideally these issues could have been addressed much earlier.

I find it hard to imagine an area of psychology that is as controversial and politicized as the world of autism. There are very strong feelings on many sides. I acknowledge I probably did not help matters when I used the phrase "Autism Wars" in an earlier column (Vyse 2018a). It is clear to me that we all need to work harder at finding a way to talk to each other in a respectful and calm manner. If we can figure out how to do

that, I believe that people with autism will be the beneficiaries.

Finally, I hope this case will lead to a discussion of the peer review process. Peer review is one of the hallmarks of modern science. We rely on it to maintain the quality and integrity of our work. It is a very good system, but as the postings on the RetractionWatch.com website make clear, it does not always produce good results. The challenges faced by peer reviewers are such that the process will probably always be imperfect, but I believe this episode suggests there are ways we could make it a little less imperfect. Perhaps we can all agree that would be a good outcome.■

Note

1. Jaswal and Akhtar's entire response to our commentary is reproduced here verbatim:

Should testimony from some autistic people be excluded?

About 30% of autistic people cannot use speech reliably or at all (DiStefano et al. 2016), a disability likely caused, at least in part, by significant difficulties in motor planning, coordination, and/or execution (Gernsbacher et al. 2008a). Some nonspeaking autistic people have learned—after years of instruction and practice—to communicate by typing on a keyboard or pointing to letters on an alphabet board. Typically, these individuals rely on assistance from another person as they spell, someone who provides physical, emotional, and/or attentional support (Cardinal & Falvey 2014).

Vyse, Hemsley, Lang, Lilienfeld, Mostert, Schlinger, Shane, Sherry, & Todd (Vyse et al.) objected to our inclusion of testimony from several nonspeaking autistic people who communicate with assistance. In experimental settings, messages produced by people who communicate in this way have been influenced by those assisting them (but see Cardinal et al. 1996). Vyse et al. argued that the testimony of the nonspeaking people we quoted therefore could not have been their own.

We recognize that nonspeaking individuals who communicate with assistance could unintentionally or deliberately be led to produce testimony that is not their own. Indeed, there is always a possibility that a person's testimony—spoken, signed, written, or written with assistance—could have been influenced in some way. But there are a number of reasons to believe that testimony produced with assistance, including the testimony used in our target article, can reflect a nonspeaking autistic person's own thoughts. First, some people who learned to communicate with assistance have developed the ability to communicate independently (United for Communication Choice 2018); the perspectives they communicate independently are consistent with those they communicated with assistance (e.g., Kedar 2012; 2018). Second, nonspeaking people who communicate with assistance routinely convey—in naturalistic, everyday settings—information that the assistant could not have known (e.g., Bigozzi et al. 2012). Third, analyses of text produced by nonspeaking autistic people who communicate with assistance have shown their writing styles to be different from those of the assistants (e.g., Tuzzi 2009).

Finally, the speed and accuracy with which some nonspeaking autistic people spell make it unlikely those individuals are merely responding to cues from an assistant. For example, one of us (Jaswal) has collected timing and accuracy data from an individual who points to letters on an 8.5- by 11-inch alphabet board held vertically by an assistant. In one 47-letter utterance ("I feel like world is waiting on me not the other way around"), he pointed to a letter, on average, every 1,085 ms (SD = 381 ms) and made no spelling errors. It seems unlikely that in the span of about a second, he could use a subtle cue produced by the assistant to accurately select 1 of 26 possible letter targets, and then repeat this process 46 additional times consecutively without error. Given that about one-third of autistic people are nonspeaking, that some have learned to communicate with assistance, and that some of them have written on the topic of our target article, we believe our inclusion of their testimony was reasonable and appropriate. Interestingly, in most cases, and although this was not intentional, when we quoted a nonspeaking person to make a particular point, we also quoted a speaking person who made a similar point. For example, on eye contact, we quoted Higashida (2013), a nonspeaking autistic person, who wrote that it "feels a bit creepy, so I tend to avoid it" (p. 25) and Tammet (2006), a speaking autistic person, who explained that it feels "strange and uncomfortable" (p. 75). The content of the quotes from nonspeaking autistic people was consistent with the content of the quotes from speaking autistic people. Our arguments about social motivation in autism would have been the same had we limited ourselves to quoting only speaking people.

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[SKEPTICAL INQUIREE BENJAMIN RADFORD

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The GIGO Problem: Crop Circle Research Edition

Q: **I'm a professor at Santa Clara University in California. Recently, I began researching whether all crop circles were humanmade and discovered a few that were clearly beyond the capacity of human authorship. I made an academic presentation (video) on this subject and would like to hear your reactions.**

—Jerry K.

A: I've investigated multiple crop circles and—along with colleagues Joe Nickell and Kevin Christopher—made several. Claims about crop circles are often greatly exaggerated, if not entirely fabricated, and wither under examination (see, for example, my column "Crop Circles: A Not-So-Convincing Case" in the September/October 2014 issue of SI).

The query above came with a link to an hourlong YouTube video titled "Can You Really Be Sure All Crop Circles Are Fakes?" It had over 200 comments, most of them wildly enthusiastic, many of them praising his careful research and scholarship. As of August 2019, he has posted about thirty videos viewed over 2.3 million times on topics including John F. Kennedy's assassination, the Newtown school shooting, UFOs, numerology, psychics, news media, and near-death experience; his channel has over 25,000 subscribers. Many of the videos serve as promotion for his self-published ebooks on the topics.

Recognizing that this professor had some following, I decided it would be worthwhile to take a look at his video and offer some advice if I could. I wouldn't necessarily have time to take in the whole thing but decided I'd watch it until I came across errors serious enough to invalidate his conclusions. In this case, I stopped watching at the thirty-second mark.[1]

I took a screen capture of the slide illustrating several fundamental mistakes, scribbled some additional notes, and then replied:

> Thanks for writing. I'm not sure what you mean by "beyond the capacity of human authorship." You seem to be referring to semantic content, is that correct? Are you also claiming that making the patterns in fields is physically beyond human capability? I saw several issues and unsupported assumptions and questionable premises in your presentation. Many of them appear in the attached slide [see Figure 1]. Upon what basis have you concluded that all crop circles were made "in just one night," with "no sounds," "no footprints," "with incredible precision," and so on? (I'll leave aside the issue of "barking dogs," since obviously dogs were not claimed to have been present at all, or even most, crop circles.) What evidence do you have that crop circles were made in silence, for example? What dataset or research did you use to derive these alleged characteristics that then served as the basis for your analysis?

The professor soon replied with a short message that addressed only one of my questions: "These are based on field reports published on the [website] cropcircleconnector.com which usually discusses footprints, cut fences, etc." That was precisely the answer I was expecting, and it's common in research into mysterious and unexplained phenomena.

He had not personally collected the data he'd used, nor had he verified it. He merely accepted other—often anonymous—peoples' claims about the circumstances under which crop circles were found. He just took the information at face value; in other words, someone said something on the internet, and he believed it to be true and accurate. This is of course an example of circular reasoning: The crop circles he references are unexplained and mysterious, because, well, people submitting reports to the website say they're unexplained and mysterious. He apparently did no independent confirmation of any of the field reports.

Recall Ray Hyman's reminder that before we try to explain something, we should first be sure there is something to explain. Before using data in an analysis, we should first be sure that we're using

quality data, otherwise the results of that analysis will be flawed or even invalid: garbage in, garbage out (GIGO).

This is a common mistake, and many others have tried this approach. For example, in 2013 Melba Ketchum self-published her "journal article" on Bigfoot using alleged somatic samples contributed by ad hoc volunteers across the country. There was no systematic, careful forensic collection of evidence, just ordinary Bigfoot enthusiasts sending Ketchum hair, blood, and other samples they assumed (for whatever reason) was (or might be) related to Bigfoot. The data set was compromised long before Ketchum got her samples in the mail, yet she plowed ahead with the analysis for the purpose of proving that Bigfoot exists as a species that merits federal protection. The result was a fiasco that embarrassed the Bigfoot community. Many of the samples were so badly contaminated that no firm conclusion could be made. The same goes for ghost hunters, who construct elaborate theories and biographies about spirits based on EVP ("ghost voices") and device readings without ever bothering to validate either. No one likes to be told they made a basic error; no one wants to start from scratch.

Had he chosen to respond to my questions about the soundness of his assumptions and validity of his premises, I'd have happily engaged in a discussion about them. I gamely replied, genuinely trying to be helpful:

> I think you'll find that a closer analysis would reveal systemic methodological errors in data sampling and collection. For example how anyone could know with any certainty that crop circles are made in complete silence (without scientific evidence such as recordings made at the time) is really beyond me. Unless you know when a circle is being made and are monitoring it in real time, how could you possibly know that no sound was made during that time? At best you'd have retrospective assumptions, such as discovering a crop circle and then trying to decide when it could have been made, and asking around after the fact if anyone nearby remembered hearing anything the previous night or a few nights before. Hardly scientific, as I'm sure you'd agree. As they say, absence of evidence is not evidence of absence! I encourage you to question your assumptions and verify the original data instead of merely taking other people's word for it, whether published in the crop circle connector or anywhere else. You've obviously spent quite a bit of time on it, and verifying the validity of your data set would likely be fruitful.

I did exactly as he'd asked: I provided a diplomatic, good-faith analysis of his arguments, the kind he might expect from scientific peer review—the kind designed to root out error and hone valid arguments. I expect he wanted me to engage with his theories on neutron stars, labyrinths, antimatter, and so on that appeared later in the video, but there was no need because it was all based on flawed (or at least unconfirmed) data. If the premises aren't sound, the conclusion likely won't be either. As Nobel laureate scientist John Sulston once observed, "There is no point in wasting good thoughts on bad data."

I genuinely pitied the professor, who seemed sincere and had clearly spent an enormous amount of time and effort searching for explanations for crop circles. It reminded me of a man who presented to me his years of efforts and research into ley lines based on the precise positions and angles of the monoliths at Stonehenge—and was crestfallen when I gently reminded him that the stones had been moved many times since the pieces were erected thousands of years ago, and thus the careful calculations he'd based his theories on were irrelevant.

The professor then replied with a largely non-responsive email concluding with a quote from Einstein ("The most beautiful thing we can experience is the mysterious. … He who can no longer pause to wonder and stand rapt in awe, is as good as dead: his eyes are closed"). I ended our correspondence on the matter:

> I see you completely ignored my perfectly reasonable concerns about the validity of your assumptions, including my specific question about your claims about the silence of crop circle making. Pity, as addressing valid concerns about data is inherently scientific; quoting Einstein to me won't improve the quality of your dataset, unfortunately. But good luck with it! ■

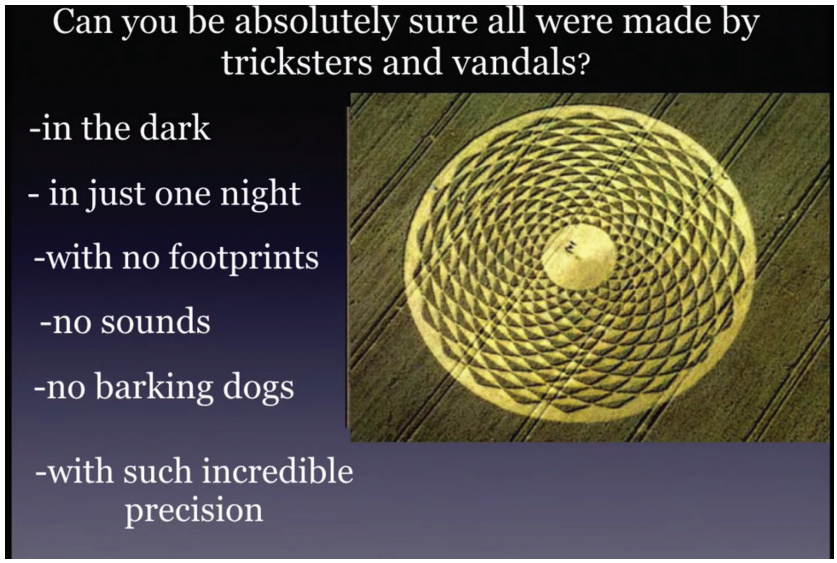
Can you be absolutely sure all were made by tricksters and vandals?
-in the dark
- in just one night
-with no footprints
-no sounds
-no barking dogs
-with such incredible precision

Figure 1: Screen shot of a crop circle video submitted to the author.

Note

1. Though I caught fatal problems with his information in under a minute, I later watched the video a bit more to see if he offered caveats or corrections or if the mistakes were a bit of rhetorical flourish he'd later correct.

NINE EVIDENCE-BASED GUIDELINES FOR A 'GOOD LIFE'

A LIST OF GUIDELINES FOR A "GOOD LIFE" BASED EMPIRICALLY ON WHAT ACTUALLY WORKS FOR PEOPLE, AS DISCOVERED BY MODERN PSYCHOLOGICAL SCIENCE.

GARY M. BAKKER

For over two millennia, people have been offering or imposing lists of "rules for living," whether they be the Ten Commandments; lists of seven, twelve, or fifty Golden Rules; Essential Rules for Living or for Living "Your Best Life" or for a "Happy and Fulfilled Life"; or, very recently, Jordan Peterson's best-selling book *12 Rules for Life*.

Mostly these lists have been simply made up based on the preoccupations, political positions, or even financial interests of the lists' authors. Rather than give us some advice or guidelines that the social sciences have shown will get many of us through life more happily, these lists tell us whether the author is politically left-leaning or right-leaning; attitudinally more individualistic (capitalist) or communitarian (socialist); or philosophically fairly cynical about human nature (the "original sin" attitude), neutral on it ("tabula rasa"), or deeply Pollyanna-esque ("noble savage"). Some are quite prescriptive (full of "oughts") and some more descriptive (about what is). And some are just trying to sell you a book, a course of therapy, or a weekend away at an ashram.

But instead of listing guidelines that merely seem profound (Daniel Dennett has called these "deepities"), that make some intuitive sense to us, or that derive from a bias but are cloaked in confabulated logic, what if instead we drew purely from what works, from what has been found to result in the greatest happiness and survival benefits to both the individual and to society? This would inject some objective criteria for inclusion on the list. This would be both a utilitarian and an empirical approach to what has been to date largely a rule-free rule-listing exercise.

There has been an immense amount of research on what is good for us and what makes us happy—what "works" for people in their lives—and this inevitably incorporates what is good for our community. This is because as highly social animals, most of us derive much of our happiness, and most of our ability to survive and to reproduce, from being embedded in human networks—within society.

Subsequent rules or guidelines will therefore be in the form of ways to lead a happy and long life while being a connected and cooperative member of the community. They will be both self-help maxims and social rules, moral "commandments," or clauses in our "social contract."

I am a clinical psychologist. I have spent over forty years helping people become happier, live better, and be healthier in their community. My guide in this endeavor—and my preoccupation for all those years—has been what the evidence shows us works. I have been a pedantic empiricist.

In my 1970s-era training, I was introduced to numerous models of human psychological functioning and the treatments and therapies deriving from each. I could have opted for those approaches that suited my temperament best, made most intuitive sense to me, or happened to be the orientation of my lecturers at the time. Rather than take such an intellectually arrogant or arbitrary course, I decided to be guided by the objective evidence: What actually works in practice in the real world?

I have been interested in two measures: treatment efficacy and treatment effectiveness. Treatment efficacy is indicated by the results of randomized controlled trials (RCTs). They tell us whether, for example, exposure and response prevention can help a person to get on top of their obsessive compulsive disorder better than another treatment will or better than a placebo treatment will. When we know whether a specific treatment has some real efficacy, then we can find out whether it will work in the real world—its effectiveness. A super drug is not effective if everyone stops taking it on day two due to its horrific side effects.

Regarding efficacy, I have conscientiously kept up with the literature reporting RCT results with a lot of therapies. Most of the ones that really work are cognitive-behavior therapies (CBTs). Regarding treatment effectiveness, there is some literature on field trials. But I have also effectively undertaken thousands of single-case, admittedly largely subjective-measurement, A-B type experimental design, clinical trials with thousands of clients. (They are "clients" because the people I see are not "ill." They are not even "mentally ill" but instead have "clinical psychological problems." But this issue deserves its own article.)

All this time I have attentively noted who has come back after being prescribed three or four specific "homeworks" (everyone I have seen has had between-session homework to do) reporting that "this helped me," "that one was too hard," "that made no sense to me," "I tried doing that but nothing changed," "I'll keep doing that with the kids because it's working," and so on.

THERE HAS BEEN AN IMMENSE AMOUNT OF RESEARCH ON WHAT IS GOOD FOR US AND WHAT MAKES US HAPPY, AND THIS INEVITABLY INCORPORATES WHAT IS GOOD FOR OUR COMMUNITY.

Condensing all the research and filtering it through decades of clinical trial and error, I have assembled nine helpful, implementable "guidelines for living." But there are two caveats: (1) All this applies only to people living in the first world. Culture and economic conditions can easily override any of this advice. And (2) I recognize that my forty-year study sample has been biased. I have worked only with a subset of the population that have decided, usually in discussion with their doctor, that their quality of life can benefit from a clinical psychologist's input. Then again, this may be a reasonable sampling, as I often reassure my more reluctant clientele that, over time, "I have seen half the people in this town."

I list nine guidelines rather than a neat twelve, traditional ten, or "magic number" seven because assembling them has not been arbitrary, not determined by my whim so as to appeal through the list's form, as a pretty painting is intended to do. Instead, the list has been discovered through observation—my own and that of the world's clinical psychologists. It is intended to appeal through its content.

1 Exercise your body and your brain every day.

Psychologists and psychiatrists want to be experts and use complex, exclusive, mysterious treatments for problems that only we can administer. This is part of the reason that if you are very sad for more than two weeks, a psychiatrist will likely tell you that you are mentally ill (they will diagnose it as a major depressive episode) and insist that you need treatment, often a pill.

But this assumption of complexity and desire for expertise has meant that deep, complex psychological theories and treatments were developed more than a century before empirical science confirmed that moderate, daily exercise is good for nearly everyone, not only physically but psychologically as well. It is a natural stress release and a side-effect-free antidepressant with a better success rate than Prozac!

If you don't already have a clinical psychological problem (CPP), then it can help prevent one from starting. But you may need psychological support to use it if you have a CPP, because feeling down will make going for your daily walk very hard to do.

Brain exercise, meanwhile, works on your brain in exactly the same ways that physical exercise keeps your body healthy. It seems nearly anything can count here. The studies in support of brain work have used activities such as learning a language or learning to play an instrument. More important than what you choose is that you enjoy it. That way you will stick with it.

2 Count your blessings.

Brain circuits that get used get stronger. That's what learning is. So, exercise your positive circuits. Start each day by deliberately anticipating something positive in the day. It could be anything: a nice lunch, a visitor, a break at work. It doesn't matter what it is as long as it's positive. It's the deliberate mental doing that helps.

Then, later in the day, "count your blessings." Deliberately acknowledge and appreciate a positive from the day—a success, a pleasure, even the absence of a negative. (I get clients to write them down in a journal.)

Just as you are more likely to continue with a physical exercise routine if it involves other people and if it has variation, you are also more likely to maintain a positive thinking habit if it varies and involves others. A "gratitude board" at work or gratitude letters you send to people—or even write and don't send—are examples of this.

3 Try to see others' points of view.

Unless you're a psychopath—and very few such people would have read this far into this article—then you can derive almost as much joy or pain in others' experiences as in your own. With all our "mirror neurons," we could quite well be called "empathizing animals."

So, once you yourself are comfortable enough in life, you can keep filling your happiness bucket by doing some nice things for others. It is no surprise that when the contentment reports of various groups in society are collected, it is those who spend a part of their week volunteering for charities and such who smile most at the end of the day. Perhaps these people are breaking out of the vicious cycle of self-pitying self-absorption that anxious, ill, or unhappy people are prone to. To focus on someone else regularly will make you feel better—especially if you are doing them some good with it—because you will share their happiness and their point of view.

Being shy or not wanting the fuss of others' gratitude is no excuse. Be creative. For example, you can quietly pay for the next customer's coffee at a café. Then walk away picturing how this will impact that person's view of humanity.

DAILY EXERCISE IS A NATURAL STRESS RELEASE AND A SIDE-EFFECT-FREE ANTIDEPRESSANT WITH A BETTER SUCCESS RATE THAN PROZAC!

4 People, not things, make you happy.

For most of us, our family and friendships bring happiness much more than riches do. The "happiness graph" levels off, and may even start to dip a little, after we achieve secure housing, health insurance, a fridge (not a second one in the garage), a reliable car (not a fast or luxurious one), and two weeks' vacation a year (overseas is not necessary).

What you will hear from many of those in entertainment and the media is the assumption that we all want to be rich and famous. This is because that's what they want from life. By self-selection, that minority of people who want fame and fortune end up on your TV telling you that this is what makes people happy. For most of us, this is a complete lie. Fame screws up most people's lives much more than it makes them content. This applies even to those who crave it. And "rising above" (the wrong term in this context) middle-middle class has been shown to do little for us. (Unless we feel left behind due to a huge disparity of wealth in society. But another entire article would be needed to usefully touch on this issue.) The deep affection and respect of those close to you is infinitely more rewarding and uplifting than the shallow adoration of thousands.

Because we know that people, not things, make others happy too, if you want to be nice to someone, give them your time, your care, or a listening ear. Don't just drop a present on their doorstep; write a note in their card, don't just sign it. Better still, make the card and the present. This applies to your children too. They will remember the walk, the ball-play, or the reassuring review of their upsetting day at school much more than the pretty thing you bought for them on the way home.

5 Work to earn, to live. Don't live for your work.

It is to society's advantage—and therefore indirectly to yours—that some of us are highly career-focused. Social discussions often revolve at least in part around work and careers; it's part of many people's self-identity. For some people, spending at least half their waking hours at work is a good way to be happy. But for most of us, if we let our relationships wither because working Saturday mornings or extra evening overtime will get us that sports car or the twin bathroom sinks, then we are being fooled into society's priorities and away from our own.

Affluent societies do rely upon a small percentage of us becoming seventy-hour-a-week workaholics, so that we all can benefit from the highly "successful" (that term needs qualification in this context) entrepreneurs, surgeons, computer whizzes, and plumbers that this obsession produces. But don't be fooled into believing that if you become one of these people, you will be happy and your life will be a success. My working life has given me privileged knowledge of the many people who have achieved greatly in their career but almost always by sacrificing as greatly in other more important areas of life, such as in their relationships or their health.

You most likely have heard that one of the rarest deathbed regrets is: "I should have spent more time at the office." So, if you score a very well-paid job, don't double your hours to become mega-rich. Drop your hours, because you can be quite comfortable while working a shorter week. Use the extra time to get healthy, be a more present parent, build your relationships, or even volunteer where you're wanted.

CONDENSING ALL THE RESEARCH AND FILTERING IT THROUGH DECADES OF CLINICAL TRIAL AND ERROR, I HAVE ASSEMBLED NINE HELPFUL, IMPLEMENTABLE "GUIDELINES FOR LIVING."

6 Keep reminding yourself: It's not all about me.

Because I am the center of *my* world, it is easy for me to lapse into assuming that I am the center of *the* world. This is understandable and perhaps even natural. But it is not true and definitely not helpful. It can make a person socially anxious, self-conscious, and can cause spiraling performance anxiety. At the extreme, it produces paranoia, grandiosity, or narcissism. Every now and then we need to correct this natural assumption and remind ourselves that there are seven billion of us. To nearly all those others, each of us is just another body in their visual field.

7 Just teach your kids how to cope.

Another natural but unhelpful tendency is to try to make our children happy—whatever that means. We want to protect them for as long as possible, to amuse them constantly, to uplift them with praise, and to "do" for them while we can so that they can be safe, pain-free, entertained, and avoid any negative emotion all day long. What could be more natural?

When this has been achieved, it has produced coddled, oversensitive, arrogant, selfish, entitled, low-initiative, low-persistence, low-resilience young adults. Rather than make our children happy, we owe it to them to teach them how to cope well in the world. Then they can make themselves happy. This does not mean concocting and imposing unnecessary challenges upon them. Don't let them run into the road because a fright will "teach them" quickly to be cautious. This is dangerous and does not show them you care. We should take them to the edge of the road many times, explain safe road behavior, and then let them walk to school.

Be a coping model, not a mastery model. A mastery model says "Oh, the dentist? I don't mind a bit of pain when it's necessary. Don't be a weakling. Off you go now." A coping model, on the other hand, says "Yes, it's scary, isn't it? I try to think about what I'll be doing when I get home. That helps. I'll see you back here in ten minutes."

8 Use your conscious reasoning to slowly make the changes you want. (The two and a half things that determine you and your whole life.)

In psyching up a client to make some changes in their life, I often describe the two and a half things that control everything about them. The first is their genes. A lot about a person's health, physical capabilities, temperament, and much more is affected by their heredity. There is little we can do about this other than to work with the cards we are dealt.

The other big influence is one's environment. We are a product of everything that happens to us—even in the womb. This part we can, henceforth, do something about if we use our insight and knowledge and make some resolutions about change.

Therefore, the further half mentioned is our conscious reasoning. This influence on our lives counts only as a half because it is a slow, difficult change factor. We can rarely just decide to be different and make it so. If you want to be a calmer person, a happier person, a more confident person, or even a nonsmoker, then you cannot do this instantly by simply deciding to do it.

But you can achieve this change over time, through your environmental influences. You can decide to put yourself through a program of change. You can consult a psychologist, mix with more people who are good for you, remove some stress from your life, and so on. You can deliberately and consciously alter your environment so that you become a different person over time—just as you can become a musician, get fitter, or become a better public speaker through practice and habit. This is the great advantage we humans have over the rest of the animal kingdom. We can anticipate results and change things now in our lives because they will produce permanent, deeper changes in us in the future.

ONCE YOU YOURSELF ARE COMFORTABLE ENOUGH IN LIFE, YOU CAN KEEP FILLING YOUR HAPPINESS BUCKET BY DOING SOME NICE THINGS FOR OTHERS.

THE WORRY FILTER

With any worry, ask yourself:

A. **Is it REALLY important?**
Does it REALLY matter? ➜ No ➜ Then STOP.
↓ (What is the worst possible outcome?)
YES
↓

B. **Is it really likely?**
Is there a good chance? ➜ No ➜ Then STOP.
↓
YES
↓

C. **Can I do anything about it now? ➜ No ➜ Then STOP.**
(Is it my problem?)
↓
YES
↓

If Yes to all 3, then <u>DO</u> something.

9 When stressed, process your worries consciously.

When you are over-stressed, depressed, ill, in pain, or just tired, the worry filter you use automatically dozens of times a day breaks down, and you can feel even worse due to the things that you get upset about, which when feeling okay you can dismiss.

This filter sorts out four types of worries: (a) Ones that actually don't matter enough to waste worry time and energy on, but this doesn't stop you; (b) ones that are too unlikely to happen to justify your discomfort; (c) ones that you can't do anything about anyway; and (d) worthwhile worry targets. Our automatic mental flow chart filters that identify these categories leave us either aware we need to "drop it and move on" (this can be easier said than done, and sometimes I will coach better "thought-stopping" to help) or with an injunction to "not just sit there but do something!"

When feeling fine, you may automatically apply this process fifty times a day. (Or at least forty-eight. No one is perfect.) When you're down, you may run it properly only forty times, and ten times you're off on a useless negative-thinking track. On those occasions, it helps to follow the helpful thinking trail consciously and deliberately, to reestablish the automatic reaction. Maybe the flow-charted questions need to be posted on your wall or written on a small card, permanently in your pocket. Do what works for you.

Of the hundreds of "homeworks" I have given to thousands of people, this one has received the most glowing praise on follow-up, amid vows to continue occasional conscious, deliberate "Worry Questions" processing forever.

GOOD LIVING. ■

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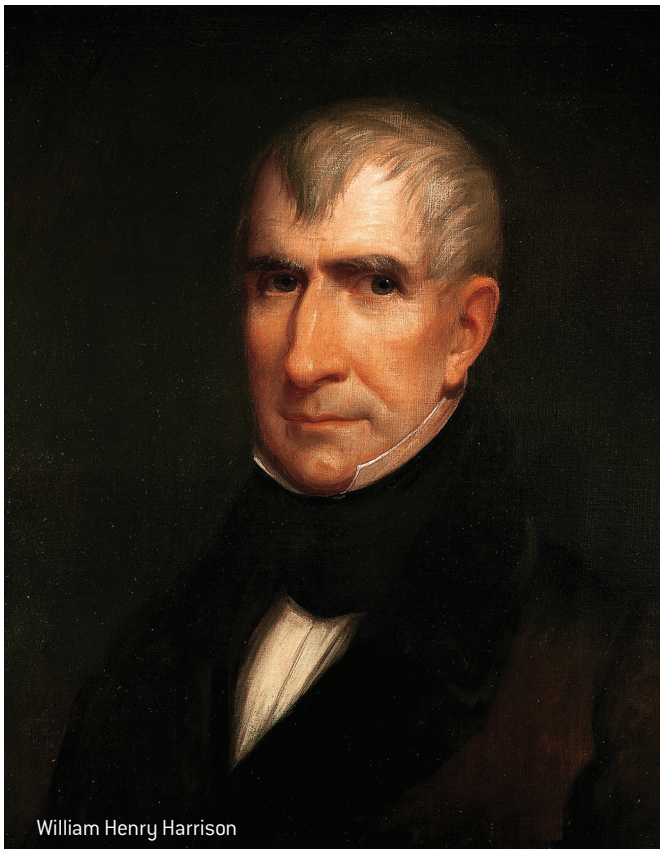
WHEN FEELING FINE, YOU MAY AUTOMATICALLY APPLY THIS PROCESS FIFTY TIMES A DAY. WHEN YOU'RE DOWN, YOU MAY RUN IT ONLY FORTY TIMES, AND TEN TIMES YOU'RE OFF ON A USELESS NEGATIVE-THINKING TRACK. ON THOSE OCCASIONS, IT HELPS TO FOLLOW THE HELPFUL THINKING TRAIL DELIBERATELY, TO REESTABLISH THE AUTOMATIC REACTION.

The Presidential Curse and the Election of 2020

As the 2020 presidential election approaches, talk of the presidential death curse has been renewed. Yet this hex has more to do with human psychology than the malevolent musings of a nineteenth-century medicine man.

TIMOTHY J. REDMOND

In November 1811, Governor William Henry Harrison of the Indiana Territory led a detachment of nearly one thousand soldiers on a mission to disband the Native American village of Prophetstown. The settlement, founded by the Shawnee chief Tecumseh and his brother Tenskwatawa, or the "Prophet," served as the headquarters of a tribal confederacy that opposed the United States' encroachment upon native lands (Mahon 1991).



William Henry Harrison

As the governor's soldiers established a camp at the confluence of the Wabash and Tippecanoe Rivers, Tenskwatawa daubed his warriors with sacred clay, assuring them that the white man's bullets would turn to mud, and ordered them to attack. What became known as the Battle of Tippecanoe was a quick, albeit brutal, affair. Contrary to the assurances of the Prophet, several Indian fighters succumbed to the hail of gunfire unleashed by Harrison's forces, and the natives were compelled to abandon both the battlefield and their village. Soon thereafter, the governor's men marched on Prophetstown and burned it to the ground (Mahon 1991).

Several months later, the United States declared war on Britain in the War of 1812. Tecumseh and Tenskwatawa's confederacy allied with the Crown and proceeded to wreak havoc on the American frontier. In October 1813, however, Harrison won a decisive and far-reaching victory over the Shawnee brothers at the Battle of the Thames in Ontario, Canada. In fact, Tecumseh's death during the fight would result in the dissolution of his confederacy, the end of native resistance east of the Mississippi River, and the establishment of U.S. hegemony over the Great Lakes frontier (Mahon 1991).

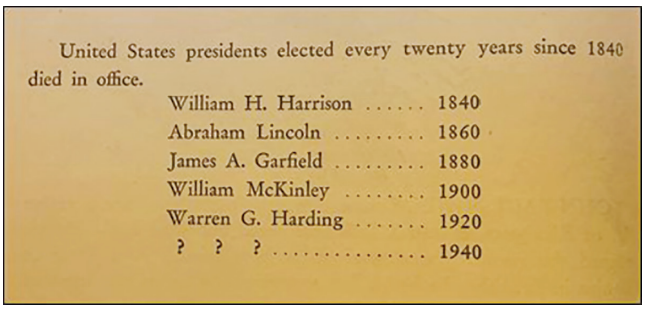
But the Battle of the Thames did more than change the course of American history. It also contributed to the canon of American lore. Indeed, legend holds that Tenskwatawa avenged the death of his brother by placing a hex on his archenemy and other future U.S. presidents. The Prophet allegedly exclaimed, "Harrison will die, I tell you! And after him every Great Chief chosen every 20 years thereafter will die. And when each one dies, let everyone remember the death of my people" (Mikkelson 2014).

This malediction, commonly referred to as the Curse of the Prophet, was apparently set in motion when William Henry Harrison was elected president in 1840. Sure enough, "Old Tippecanoe" succumbed to pneumonia just one month after taking office. Abraham Lincoln was elected in 1860 and shot to death by John Wilkes Booth in 1865; James Garfield was elected in 1880 and assassinated by a disgruntled office seeker in 1881; William McKinley was elected in 1900 and shot to death by an anarchist in 1901; Warren G. Harding was elected

in 1920 and died of a heart attack in 1923; Franklin D. Roosevelt was elected in 1940 and died from a cerebral hemorrhage in 1945; and John F. Kennedy was elected in 1960 and assassinated three years later by Lee Harvey Oswald. In all, seven Great Chiefs, chosen every twenty years, had died while in office.

Yet the first published report to attribute this mortiferous pattern to the Curse of the Prophet may not have surfaced until the latter years of the twentieth century. Indeed, when the ethnographer C.C. Trowbridge interviewed Tenskwatawa in 1824, their conversation produced over seventy pages of material but not a single reference to the alleged hex or curse (Trowbridge 1939). In 1866, John Smith Dye, in his book *History of the Plots and Crimes of the Great Conspiracy to Overthrow Liberty in America*, wrote about the deaths of William Henry Harrison, whom he insisted had been poisoned with arsenic, and of Abraham Lincoln. Yet the sensational text, which attributed the presidential partings to the nefarious machinations of the southern Slave Power, similarly made no mention at all of the Curse of the Prophet (Dye 2008).

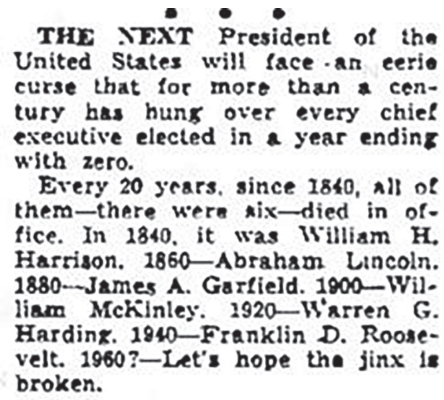
In fact, the first printed account of the twenty-year presidential death cycle may not have appeared until 1931 when Robert LeRoy Ripley reported on the pitiful pattern in his illustrated column, *Ripley's Believe It or Not!* (Pohl 2013). The famous cartoonist published a list that included the five presidents who had been elected every twenty years since 1840 and died while in office as well as a series of ominous question marks next to the year 1940 (Ripley 1946).


United States presidents elected every twenty years since 1840 died in office.

William H. Harrison	1840
Abraham Lincoln	1860
James A. Garfield	1880
William McKinley	1900
Warren G. Harding	1920
? ? ?	1940

And the first published account to ascribe the deaths to an actual hex may not have appeared until November 1940 when the syndicated cartoonist John Hix wrote, "The man who attains the executive chair for the next four years faces the jinx of a 100-year-old 'curse,' for death in office has come to every President elected at 20-year intervals since 1840" (Hix 1940). In February 1960, the journalist Ed Koterba similarly noted, "The next President of the United States will face an eerie curse that for more than a century has hung over every chief executive elected in a year ending with zero" (Koterba 1960). Still, neither Hix nor Koterba referenced the tale of Tenskwatawa.

A written account that specifically described the Curse of the Prophet apparently did not appear in print until 1980 (Pohl 2013). During that year's presidential contest between Democrat Jimmy Carter and Republican Ronald Reagan, *Parade* magazine's celebrity columnist, Lloyd Shearer, wrote: "Legend has it that the Prophet, who was the Shawnee shaman, or medicine man, thereupon invoked a curse upon [William Henry] Harrison and his government. The curse


THE NEXT President of the United States will face an eerie curse that for more than a century has hung over every chief executive elected in a year ending with zero.

Every 20 years, since 1840, all of them—there were six—died in office. In 1840, it was William H. Harrison. 1860—Abraham Lincoln. 1880—James A. Garfield. 1900—William McKinley. 1920—Warren G. Harding. 1940—Franklin D. Roosevelt. 1960?—Let's hope the jinx is broken.

A written account that specifically described the Curse of the Prophet apparently did not appear in print until 1980.

was that all future U.S. presidents, starting with Harrison, who were elected in a year whose last digit was zero would die in office" (Shearer 1980).

By now the pattern had embedded itself into the minds of many. For instance, during a campaign event in Dayton, Ohio, a member of the audience asked Jimmy Carter whether he was concerned about the "predictions that every 20 years … the President dies in office." The sitting president replied, "I've seen those predictions … I'm not afraid. If I knew it was going to happen, I would go ahead and be President and do the best I could till the last day I could" (Carter 1981). Nancy Reagan was similarly indifferent. In her memoir, the wife of the Republican nominee remembered that although "the so-called twenty-year death cycle for American presidents … had been written about during the 1980 campaign … I hadn't paid it much attention" (Reagan 1989).

Of course, that all changed when President Reagan was shot and wounded by John Hinkley Jr. on March 31, 1981. Now the First Lady found "the historical pattern [to be] terrifying" and she wondered, "Was Ronald Reagan, elected in 1980, next?" (Reagan 1989). No, Mr. Reagan was not next. He fully recovered from the attempt on his life and went on to serve two full terms as president. Nor did George

President Reagan waves from the White House after his return from the hospital. Reagan wore a bullet-resistant vest under his red sweater.

W. Bush die in office. Despite the fact that he was elected in 2000, he survived several assassination attempts and even a brief bout of unconsciousness after choking on a pretzel. As of this writing, Mr. Bush remains alive and well.

So too, however, is belief in the Curse of the Prophet. This conviction is, in part, sustained by four common logical fallacies: (1) confusing correlation with causation, (2) the lottery fallacy, (3) cherry picking, and (4) moving the goalposts.

Confusing correlation with causation is a fallacy that assumes cause and effect for two variables simply because they occur together (Novella et al. 2018). For instance, proponents of the Curse of the Prophet believe that because being elected president in twenty-year intervals from 1840–1960 was correlated with dying while in office, something about the former must have caused the latter. But a correlation does not necessarily imply causation. In fact, the correlation might simply be due to chance.

Despite the fact that he was elected in 2000, George W. Bush survived several assassination attempts and even a brief bout of unconsciousness after choking on a pretzel.

Yet the lottery fallacy presumes that the more improbable a correlation, the more probable a cause. The likelihood that the twenty-year presidential death cycle would come to pass by chance alone is extraordinarily low. But come to pass it did. As such, advocates of Tenskwatawa's hex conclude that the cycle must have had a cause and that a curse was as good an explanation as any. The lottery fallacy, however, confuses the probability of *one* outcome with the probability of *some* outcome (Novella et al. 2018). If one million people each purchase a single raffle ticket, the odds that any one of them will win are one in one million. But the odds that *someone* will win are certain. Similarly, while the odds of the twenty-year presidential death cycle are low, the odds that some presidential death cycle would occur are rather high. If the twenty-year death cycle failed to develop, then perhaps a Virginia death cycle (every president from Virginia died while in office), or a William and James death cycle (every president with the first name William or James died while in office), or a whiskers death cycle (every president with facial hair died while in office) would have materialized in its stead. It is the endless number of improbable death cycles that renders such a death cycle so probable.

Cherry picking, or the selective use of data, occurs when an individual includes information that confirms his or her position while excluding information that does not (Novella et al. 2018). For example, adherents of the Curse of the Prophet readily consider the elections of Abraham Lincoln (1860) and Franklin Roosevelt (1940) as evidence for the hex because they were both elected in years that ended in zero. Yet the fact that neither Lincoln nor Roosevelt died until they were reelected in 1864 and 1944, respectively, is often pushed aside. Of course, this reelection sleight-of-hand conveniently allows the curse more time to unfold. While Thomas Jefferson (1800) and James Monroe (1820) were elected in years that ended in zero, they are summarily ignored because both men survived their time in office. But if either one of them had died while in office, we would have been regaled with a tale of how the curse was initially placed on Jefferson because he instructed Governor Harrison to "drive [the Natives] across the Mississippi" (Jefferson 1803) or on Monroe because he was the first person to ascend to the presidency following the Battle of the Thames. Although Zachary Taylor died while in office, his election (1848) is disregarded because he was not elected in a year that ended in zero. Needless to say, if he had been elected in such a year, his death would have been attributed to the curse as opposed to the consumption of cherries and milk (Bordewich 2012).

Finally, moving the goalposts occurs when a previously agreed-upon standard of proof for accepting a claim has been arbitrarily changed once it has, or has not, been met (Novella et al. 2018). According to Shearer's telling, there are four criteria for the Curse of the Prophet: "The curse was that [i] all future U.S. presidents, [ii] starting with Harrison, [iii] who were elected in a year whose last digit was zero [iv] would die in office" (Shearer 1980). The presidencies of Mr. Reagan and Mr. Bush obviously failed to meet the final criterion. As such, those who wished to maintain their belief in the hex were forced to move the goalposts. For instance, Gary Bergel of the Intercessors for America (IFA) argued that the elections of 1980 and 2000 were exempted from the Curse of the Prophet because the IFA successfully encouraged its membership "to pray for the death curse to be broken" (Bergel 2015).

Likewise, the paranormalists Joel Martin and William J. Birnes argued that the hex failed to take Ronald Reagan's life while in office because the First Lady "always made sure that [the president] avoided travel and exposure to danger on days when his astrological chart said he was particularly vulnerable." Nevertheless, the authors also suggest that Tenskwatawa's hex may still have been invoked because "Ronald Reagan began suffering from the effects of incurable Alzheimer's Disease during his time in office and actually began to die" (Martin

and Birnes 2003). Martin and Birnes similarly proposed that an alleged attempt made on then-President George W. Bush's life on September 11, 2001, illustrates that the Curse of the Prophet "has lingered on … in one form or another" (Martin and Birnes 2003). Thus, an uncompromising death curse has been transmogrified into one that can encompass the onset of an enduring health problem or an unsuccessful assassination attempt as well as one that can be assuaged through prayer, astrology, or presumably other means.

In October 2015, the United States entered its longest period without losing a sitting president to an assassin or illness. In truth, advances in security and medicine have made presidential deaths historically uncommon (Friess 2015). Nevertheless, the coming presidential election of 2020 has already renewed speculation about the Curse of the Prophet (Kelly 2019). Yet we should take solace in the fact that the hex has more to do with human psychology than the alleged malevolent musings of a nineteenth-century medicine man, and we should take this opportunity to remind ourselves that a correlation doesn't necessarily imply a causation, that unlikely events are often quite likely, that we should consider the misses as well as the hits, and that we can change our minds rather than our standards of proof. ■

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STATEMENT OF OWNERSHIP, MANAGEMENT, AND CIRCULATION (Required by 39 U.S.C. 3685)

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Everything Means Something in Viking

With the twenty-first century resurgence in racist bigotry in the Anglo-American and European world, racists have appropriated nineteenth-century Viking pseudohistory to bolster their belief in white supremacy.

BRIAN REGAL

The growing racist, white supremacist, alt-right movement (not to mention a plethora of recent television documentaries about ancient America) has taken on an incongruous aspect. They have embraced ancient Nordic, Viking culture. As strange as this sounds, it is nothing new. The fondness for Vikings has a long pedigree. In the early nineteenth century, some in the United States began to believe that rather than Christopher Columbus, Vikings—Leif Eriksen in particular—had discovered America. There was little evidence to support this notion, and what supporters held up as such was dubious at best.

The belief that Eriksen discovered America was largely confined to the realms of America's wealthy, Protestant, "Native Born," big-city Caucasian elites. Theorists such as Harvard chemist-turned-amateur-historian Eben Norton Horsford published books and articles, lobbied politicians, surveyed sites, and put up statues declaring Leif Eriksen the "true" discoverer of America. Underneath the insistence upon the Viking theory of American Discovery was a deep-seated fear and hatred of immigrants—especially the Irish and Italian Catholic immigrants then pouring in—who were seen by the Viking fans as degenerate outsiders ruining the country. That underlying bigotry is also behind the current resurgence in Viking infatuation by those who believe that everything means something in Viking.

There are two Viking stories here. Genuine archaeological evidence of Norse explorers who reached North America centuries before Columbus was discovered in the 1960s. The Norse reached L'Anse aux Meadows in Newfoundland and established settlements there. There is no evidence, however, that they traveled much farther south than that. The other Viking theory, established long before L'Anse aux Meadows was discovered, is problematic. The original idea of the Norse discovery of America had specific individuals, most famously Leif Eriksen, having come to the new world and exploring and setting up encampments and even cities throughout New England and as far south as Florida. These claims have no evidence for them aside from a few Old Norse texts that are more literary and romantic than factual and a few supposed artifacts with even less veracity. These are the Vikings some have used to inspire dark, racist, anti-immigrant feelings.

Norse raiders—often erroneously referred to as Vikings—did wreak havoc upon the British Isles, Northern Europe, and even as far south as the Middle East during the tenth and eleventh centuries. They were widely and rightly feared. By the 1300s, however, these raids had ended, and the Norse had settled down across the region and become part of several separate, indigenous populations. So many people from Scandinavia had settled in northern France, for example, that the region came to be known as Normandy. Slowly, farming and commerce replaced conflict. The fearsome raiders who appeared as wild-eyed defilers all but vanished from the Western imagination. There are no mentions of the Norse, for example, in the Arthurian legends, and Beowulf was unknown in the United Kingdom until the nineteenth century.

Until the latter twentieth century, the only "evidence" that Norse people came to the New World prior to Columbus was a collection of late medieval manuscripts collectively known as the Vinland Sagas. This name comes from the belief that in his explorations of the lands west of Greenland, Leif Eriksen (who may or may not have been a historical personage) called the places he found Vinland. It was not until the latter part of the 1600s, however, that a few scholars from Iceland and Norway began to suggest that Vinland may have been North America. The texts tell a rousing story of adventure, warfare, love, murder, friendship, valor, and cowardice just as one would expect of a text meant to inspire, enthrall, and entertain an audience.

Violent warrior culture was only a part of Viking life. Most of these people—who had no homogeneous ethnicity or culture—were traders and farmers. In the Vinland Sagas, Leif Eriksen and his homicidal sister Freydis take center stage, but it is his friend, the farmer Thorfinn Karlsefni, who holds the story and the settlements together. Thorfinn and his wife, Gudrid, have a child named Snorri (if this is histor-

ically accurate, then Snorri Karlsefni—rather than Virginia Dare—was the first European born in the Americas). The modern-day alt-right Viking poseurs have little interest in farmers. They prefer the supposed manly mannishness of the warriors (though their choice of khaki pants, polo shirts, and tiki torches does have a tendency to undermine that image).

The nineteenth-century idea of the Vikings merged smoothly with a growing interest in the mythology of the Aryans, where it was adopted by Germanic nationalists and anti-Semites. For some, the image of the Viking represented the Nordic or Aryan ideal of racial superiority. In America, Norse theory drew several proponents who were anti-Catholic and anti-immigrant bigots and used the idea of Viking discovery to bash Columbus in particular and the Catholic Church in general. In a fascinating twist on the current fantasy of Vikings as pagan sorcerers, in his *The Goths in New England* (1843) George P. Marsh argued that they were more than the stereotyped fur-covered ravagers. The Norse, or Goths as he called them, were not "the savage destructors and devastators that popular error has made them." They were bringing Protestantism to sweep away "the spiritual and intellectual tyranny of Rome." He argued the Puritans who came to New England were children of the Goths, "the noblest branch of the Caucasian race."

The great proponent of nineteenth-century Viking fandom was Eben Norton Horsford (1818–1893). Having become convinced that Leif Eriksen had discovered America, laid down a personal settlement, and helped found a city, Horsford tirelessly searched the region around his home in Cambridge, Massachusetts, and claimed to have found these very places. He and his daughter Nellie tirelessly promoted this idea. Though popular with the general public, few in the professional world of history and archaeology accepted his arguments. The Norse theory of American discovery quickly became part of a wider anti-immigrant, anti-Catholic movement.

A friend of Horsford, Thomas Gold Appleton (1812–1884), was a Boston lawyer-turned-Aryan aficionado. He said that Eriksen and the others were Aryans and as such "the greatest race in the history of Mankind." In musings on life he published as *A Sheaf of Papers* (1875), Appleton randomly evaluated the different ethnic groups coming to America. "The Latin races," he says, "are now being weighed in the balance and found wanting." Erik the Red, on the other hand, was the "flowering of the Alpine [read Aryan] Rose." He felt that "not without meaning, at the head of that swarm [of dark-skinned people] God has placed the Anglo-Saxon race."

Underlying racism is behind the current resurgence in Viking infatuation by those who believe that everything means something in Viking.

Another virulent anti-Catholic Viking proponent was Maria Shipley (1843–1900). She argued that the Norse discovery of America concerned more than just whose feet first stepped upon the New World. She saw, as did several pro-Norse authors, that the very survival of the United States was at stake. To allow Columbus to continue to be credited with the European discovery of America would allow the Catholic

Church inroads to power and influence in the United States that would lead ultimately to the country's downfall at the hands of a repressive religion and church hierarchy. Indeed, her book is less a reasoned presentation of facts and evidence supporting the Norse theory than a long rant against the evils of Catholicism (and eventually Protestant Christianity as well). She placed Nordic culture at the heart of American governmental and political development. She referred to the Vikings as a kind of equivalent to the "Pilgrim Fathers."

A far cry from today's misogynist Viking fans, Shipley viewed the Norse as a kind of fairy tale pagan, occult society with a nature-loving philosophy, female equality, and sexual license. Shipley combined her passion for Vikings with a growing admiration for "pagan" religion and an ardent feminism coupled with a consuming distaste for the Catholic Church and what she perceived as a Catholic conspiracy to take over America. Her book *The Icelandic Discoverers of America* (1888) was another long rant against all things Columbus and Catholic. She saw Columbus as little more than a cowardly slaver, whereas the Vikings were virile, manly men. Columbus, she argued, was a bit of an effeminate wuss. Current alt-right fans echo this sentiment in their deep-seated fears of a supposed growing effeminacy of modern man, emphasized by their odd obsession with milk and soy.[1]

A far cry from today's misogynist Viking fans, Shipley viewed the Norse as a kind of fairy tale pagan, occult society with a nature-loving philosophy, female equality, and sexual license.

White supremacists standing by the statue of Robert E. Lee before the crash in Charlottesville. Credit: Go Nakamura.

By the early twentieth century, the Anglo-American Viking Theory obsession faded, only to return by the early twenty-first century. The interest in the Vikings became a part of the growing alt-right, white supremacist, and Neo-Nazi resurgence in America, England, and Western Europe. White supremacists have tried their awkward best to argue that Norse, like medieval, history shows a bygone world of Caucasian homogeneity where people of color were totally absent. They believe that this romantic white pseudohistory is one where no influence of other cultures has intruded. They argue that Norse culture is the fount of all racial superiority in the world. It is part of a wider phenomenon of pseudohistory in which amateur theorists have tried to revise the understanding of Medieval Europe and Civil War–era America. Like the Viking theorists of the nineteenth century, the twenty-first century enthusiasts use their belief to bolster their fear of immigrants, Jews, and Muslims—rather than Irish and Italians—while attempting to prop up their own masculinity. The alt-right firebrand Richard Spencer once said that women prefer alt-right men because of their virility. Women, Spencer said, prefer strong men "like cowboys or Vikings." YouTuber Mike Peinovich, while discussing the supposed conquest of Europe by immigrant Muslims, said, "It's time to become Vikings and wipe these people out."

Pseudohistory, like pseudoscience, is an intellectual endeavor that purports to follow the rules of academic historical research but does not. For pseudohistorians, a thin veneer of superficial scholarship covers the deeper rot at its heart. Academic historians pursue knowledge about the past by tracking down and digesting primary source documents, writings, books, and artifacts. They follow this material, while contextualizing it, so as to learn about the past. They do it without preconceived ideas or answers. They let the facts push them one way or another and arrive at some insight regardless of the political, cultural, or religious consequences. Pseudohistorians dispense with all this and begin with a "truth" they want confirmed. In the case of Viking theory, they believe Viking culture was as lily white as the snows they believe they hailed from. All efforts then go into proving this preconceived idea regardless of the facts and evidence. This approach is at the heart of the Neo-Viking movement.

To live their Viking fantasies, some alt-right aficionados like to dress up in odd combinations of modern helmets and body armor with their idea of period garb in a form of the worst cosplay ever. Despite their increasing use of violence, the overall effect of their costumes is more amusing than intimidating. Little shields with ersatz runic inscriptions proliferate. Their admiration owes more to nineteenth-century Germanic theater and twentieth-century cinema than any historical or archaeological reality. Scholars argue that the modern imagery these people have adopted is more Victorian than Viking.

The mash-up of Viking regalia and political violence and hate speech is not new. The Nazis had a barely contained arousal at Viking culture. They embraced the runic inscriptions as their own and styled much of their symbolism on what they considered their forebears. There was a Nazi army unit called The Viking Division. They too saw in the fan-

tasy of Viking culture the mirage of their own antecedents of racial superiority. This helps account for the confluence of racist, Neo-Nazi, and Neo-Confederate imagery often seen at their gatherings and protests today (the preference for bogus history and science also means beliefs such as flat-earth, anti-vaccination, and UFOlogy have begun to bleed into them).

While most of the Viking aficionados are mere sound and fury, some of them have gone to violent extremes. Anti-racist protests have been met by violent alt-right counter protesters who quickly resort to physical group violence. Individuals have also taken up the Viking sword. In May 2017, Jeremy Joseph Christian, who stabbed and murdered people on the Portland, Oregon, light rail, posted "Hail Victory, Hail Vinland" online before his rampage. When the gangs of white supremacists marched in Charlottesville the following August, some carried cardboard shields with Norse runic symbols on them. One of them, James A. Fields Jr., intentionally drove his car into anti-Nazi protesters, killing Heather Heyer. He was later convicted and sent to prison. He will likely feel at home there. White supremacist prison organizations have used Viking symbolism and embraced the historical religion of the Vikings, Odinism, perverting it in the process. A more recent organization to come out of the same white supremacist/prison nexus is the Vinland Folk Resistance.

White supremacists have tried their awkward best to argue that Norse, like medieval, history shows a bygone world of Caucasian homogeneity where people of color were totally absent.

In an interesting turn that few of the modern Viking theory fans recognize, nineteenth-century Viking researchers rejected the pagan Odinism of tenth- and eleventh-century Norse people and claimed they were really Christians. Today's Viking enthusiasts embrace the pagan religious aspects of their heroes and try to package it as some sort of eternal Caucasian spirituality not ruined by Jews and other "mud people" they consider inferior. This has resulted in an unlikely backlash.

The racist embrace of Norse religions such as Odinism is as fantastical and misunderstood by its appropriators as any other hijacked aspect of Norse or medieval history. Asatru is a modern revival of the Old Norse religion. In one last ironic twist to this story, the modern followers of Asatru—which began in Iceland in the 1970s and has since grown around the world—have denounced the racist embrace. They argue Odinism/Asatru is a peaceful religion that does not recognize racial hatred. Indeed, they argue that the Viking era was multiethnic and had no concept of race as it is interpreted today. They have actively fought to distance themselves from what they consider the violent bastardization of their religion, and they consider themselves anti-racist Vikings.

The embrace of Viking history by the alt-right is a disturbing example of the attempt to subvert history to some evil end. It fits in with the "Irish Slave" myth, the delusion that the Democratic Party is the genuine party of racism and fascism, the suggestion that African slaves fought voluntarily for the Confederacy, and other forms of historical memetic nonsense. The idea that Leif Eriksen discovered America was, and still is, a desperate claim that America, as well as the United Kingdom and Western Europe in general, is a whites-only homeland settled right from the start by Nordic supermen. Native Americans are discounted as little more than brown-skinned, savage heathens who only got in the way of proud white expansion, and non-white, non-Christians are seen as savage defilers of all that is good and beautiful who must be stopped at all costs. While we do know now that the earliest Europeans to come to America (of which we are aware) were Norse, the particular Leif Eriksen story of Vinland has no supporting evidence. It is a wish-fulfillment fantasy meant to satisfy a troubling emotional need for everything to mean something in Viking.

If the genuine Vikings of the tenth and eleventh centuries could see what is going on now in their names, they would likely be puzzled. But Thorfinn and Gudrid are together in eternity. They hear not the call of the alt-right to a white paradise that never existed. ■

Note

1. In one of the odder aspects of current white supremacist Viking fandom, some alt-right types go on about how cow's milk is a symbol of white supremacy. It is genuine; it is what the Vikings drank. Soy, on the other hand, is for weaklings and the effeminate. Milk enhances male virility while soy destroys it. Also, veganism is for sissy boys while meat-eating is for real warriors.

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Percival Lowell and the Canals of Mars
Part II: How to See Things That Aren't There

The same errors of observation and interpretation that led Percival Lowell and others to see "canals" on Mars can happen today. New experiments show that 30 percent of presumably rational respondents provided completely imaginary accounts of structures while looking at a *blank white disk*.

MATTHEW J. SHARPS, SETH HURD, BRANDON HOSHIKO, ERIK WILSON, MARY ALYSSA FLEMMING, SIMRAN NAGRA, AND MARIBELL GARCIA

Near the turn of the twentieth century, several distinguished astronomers reported the observation of "channels" or "canals" on Mars. These canals, as planetary features, don't exist at all (e.g., Amundson 2017; Brasch 2018; Sheehan 1988). Rather, as discussed in a previous SI article (Sharps 2018), the "observation" of these canals derived from psychological factors in the minds of the observers.

Our present research focuses on the ways in which these psychological factors can literally alter subjective reality to the point that *people see things that aren't there at all*. Including canals. Making this happen is easier than one might think.

One of the most important reporters of the canal phenomenon was the great planetary astronomer Percival Lowell. Like many responsible scientists of his day, Lowell saw the "canals" as artificial water channels designed by something like little green men with little green civil engineering degrees. Lowell thought that these alien hydrologists were trying to save their increasingly desiccated desert civilization by shipping water around in their extraterrestrial canals (see especially Amundson 2017; Brasch 2018); however, even in Lowell's day—and even with this heroic if somewhat melodramatic alien backstory—many scientists did not find the canals convincing.

In a paper published in 1903, Joseph Edward Evans and Edward Walter Maunder set out to prove that the martian canals were a mental rather than physical phenomenon. In a series of experiments, British schoolboys were asked to copy maps of Mars (with the major confirmed features of the planet already drawn on them). Evans and Maunder found that many of the boys connected major features with lines, which coincided with Lowell's "canals"; these nonexistent linear structures had no possible genesis outside the boys' own minds, exactly as suggested by the principles of Gestalt psychology (see King and Wertheimer 2005; Kohler 1947; Sheehan 1988; also see Sharps 1993; Sharps 2003; Sharps 2018).

Granted, there are psychological differences between schoolboys and adult astronomers that might limit the generalizability of this work. Also, a modern experimental psychologist tends to gasp in horror at some of the omissions in the published report of this research (for example, the report includes the phrase "There will be no need to give in detail all the experiments made … ." [Evans and Maunder 1903]). However, whatever the problems with methods and reportage, Evans and Maunder clearly demonstrated that there was a psychological source of "canals" quite outside the rather outlandish possibility of martian construction gangs energetically plowing through the alien topsoil with extraterrestrial steam shovels.

On the other hand, the loose methodology of the Evans and Maunder work may have had something to do with the later contradictory work of the astronomer Flammarion, who utterly failed to replicate these English results with French schoolboys. The French drawings were effectively bereft of canals (see Sheehan 1988). The entire canal thing remained, so to speak, up in the air.

There were other dissenters from Lowell's perspective as well. Lowell's assistant, A.E. Douglass, began to worry about the entire canal business when he found that he, Douglass, not only seemed to see canals on Mars but started seeing the things on a moon of Jupiter as well. Either there were a hell of a lot of alien civil engineers out there in the solar system (some with perhaps a long commute), or something was definitely wrong. Douglass suggested that "floaters" in the vitreous humor of the eye, or even structural factors in

the outer surface of the eye itself, might generate false images. Douglass wrote to psychologist Joseph Jastrow for help with the psychological principles involved (apparently Jastrow never wrote back). But Douglass persisted. With W.H. Pickering, Douglass set up a disk, the same relative size through the telescope as the face of Mars, to try to make sense of the canal phenomenon (Hoyt 1976). Douglass studied "artificial planets" at various ranges to make sense of what he clearly suspected were optical illusions, and he later wrote an interesting paper (Douglass 1907) in which he catalogued a series of physical and psychophysical phenomena, many observed in his own experiments, in which he sought to explain the observation of what he referred to as "these faintest of markings," the canals. *Even in observing a blank white disk*, Douglass repeatedly saw lines "radiating" from some point near the center of the given image, lines similar to those that also predominate Lowell's 1896 drawings of the planet Venus, which seemed at the time to be infested with *canali* as well.

Not surprisingly, Lowell was none too crazy about Douglass's essentially psychological explanation. Lowell believed the canals were physically real and reflected favorably on the grit and gumption of hard-pressed martian engineers, battling against the encroaching deserts of their ancient world (e.g., Amundson 2017). Douglass was essentially fired and went on to the University of Arizona, where he contributed enormously to the science of dendrochronology. Life and Lowell's canals moved on.

But that business with Douglass and the *blank white disk* should probably not be allowed to move on so quickly. The reason is that a blank white disk offers no Gestalt "anchors" on which to fasten canals by means of the usual suggested mechanisms, the Gestalt laws of closure and good continuation (King and Wertheimer 2005; Kohler 1947; Sharps 1993; Sharps 2018; Sheehan 1988). The only sources of "canali," or of any other false perceptions or interpretations on a blank white disk, for that matter, would lie in the realms of individual differences and sociocognitive factors.

This led us to an interesting question: Could we *make* modern people see canals, or something equally false, with reference to these two types of influence alone, and on a blank white disk?

This was the subject of the following experiment.

Methods and Details

The full moon at "supermoon" approach to Earth (close orbital approach) was photographed with a handheld Sony Alpha digital camera using a 70mm telephoto ("portrait") setting. This resulted in a round, natural picture of an illuminated object in the night sky but with all surface detail blurred and over-illuminated to the point of invisibility; in short, we had a blank white disk, but it came from a natural source.

Using PowerPoint, we presented this image to forty-eight female and fifteen male college students (aged eighteen to twenty-two years; gender ratios reflected the classes available). These respondents were informed that they would view one of two things: either a "lunar or planetary object photographed by telescopic instruments within our solar system" (which was true) or a lunar or planetary object on which "authorities" in science and engineering had discerned features or structures, some of which may have been seen as "artificial" (which was also still true—there are all sorts of natural features on the moon, and you can always find the occasional PhD on cable TV who will yammer away on "documentaries" about buildings or even statues on the Moon).

We also administered the Dissociative Experiences Scale (DES), a measure of a critical individual-differences factor in peoples' belief in the paranormal. In previous research published in SI (e.g., Sharps et al. 2016), we showed that subclinical dissociative tendencies as measured by the DES (tendencies to perceive the world as vague and potentially supernatural) not only biased ordinary people to believe in such things as aliens and Bigfoot but actually allowed them to *see* aliens and Bigfoot in stimulus pictures that were pretty obviously Halloween costumes to everybody else.

Psychological factors can literally alter subjective reality to the point that *people see things that aren't there at all.*

It is important to note that we are not talking here about dissociation in the clinical sense, the highest levels of which may be seen in dissociative identity disorder. In this experiment, we dealt with dissociation in the normal, subclinical, nonpathological sense experienced by everybody from time to time, in which the world seems slightly odd, but we don't know why. If dissociation can contribute to false perceptions of Bigfoot, we thought, then it could certainly contribute to the observation of nonexistent features on other worlds. Dissociation, therefore, seemed the perfect individual difference to test in this context.

Results: Illusory Features of an Imaginary World

My research group has been privileged to publish articles in SI in which supposedly rational adults have demonstrated firm beliefs in Bigfoot, aliens, ghosts, and the 2012 return of the ancient Mexican god Quetzalcoatl. But we've never seen anything like this.

In the present study, 30.16 percent of our supposedly rational respondents provided completely imaginary accounts of structures they *interpreted* for us *based on a blank white disk*. These interpretations ranged from "fire which creates light" to "yellow and purple rays of light" to "many dots, evenly spaced"

to "yellow object, mountain ranges, canal, hills, buildings" from a person who apparently wasn't kidding. The interpretations were flying high and free. These were interpretations of a blank, white, round stimulus object. It could have been an illuminated golf ball. But about one-third of our respondents created false interpretations of what they believed they saw anyway.

Over one-third (34.92 percent) of our respondents reported seeing some kind of "structure" on this structure-free orb, and 25.40 percent reported colors, ranging from violet to yellow, on this purely white object. The color factor has precedent; Douglass (1907) reported many chromatic anomalies with his refractive telescopes. However, no such factors could have influenced these results. This was a simple white disk, presented by PowerPoint, with no chromatic aberrations inherent in the system. (No respondents identified this disk as the moon, although one person wondered whether it might be.)

The crux of these results: We presented reasonably educated people with a round white blob. About a third of them saw features, structures, and colors on this blob that weren't there at all and provided wholly erroneous interpretations, essentially stories, about what they erroneously believed they had seen.

Lowell saw the "canals" as artificial water channels designed by something like little green men with little green civil engineering degrees.

Results: Individual Differences in Dissociation

Did dissociative tendencies contribute to these bizarre perceptual and cognitive anomalies?

Absolutely. Regression analysis of DES scores versus number of interpretations yielded significance at $p = .019$, $\beta = .442$; the more dissociation, the higher the number of erroneous interpretations. Interestingly, this effect occurred only with the "planetary or lunar object" condition, not the "authorities" condition. Also, this effect occurred only with interpretation; dissociation did not contribute significantly to color or structural misperception.

This makes psychological sense. Dissociative tendencies would tend to operate at deeper levels of cognition. Color and structure perception are relatively "shallow" at cognitive levels; the work of Douglass, for example, is filled with references to color misperceptions that could as easily have had their origins in the chromatic aberration of lenses as in the psychology of the given observer (Douglass 1907). The same relatively shallow factor applies to structural shapes: either you see a round thing or a square thing—or you don't.

But to decide that the given square thing is an alien headquarters or that the round thing is a flying saucer—that takes *interpretation*, the level at which we believe dissociative tendencies have their deeper, strongest, and most insidious effects. Dissociation not only convinces you that you *believe* in Bigfoot but that you *see* him—and this is exactly the misinterpretive effect of dissociation we see in the present data and that we have observed in previous studies (e.g., Sharps et al. 2014; Sharps et al. 2016).

Results: Sociocognitive Factors

There were no differences in the production of false colors, structures, or interpretations of our stimulus object between the "planetary/lunar" and "authorities" conditions at all. Also, dissociative factors only operated in the former condition. Why?

A useful theoretical perspective lies in Gestalt/Feature-Intensive Processing theory (G/FI; Sharps 2003; Sharps 2017; Sharps et al. 2014; Sharps et. al 2016). G/FI theory suggests a continuum between feature-intensive processing, which involves detailed analysis of specific features of the given situation, and Gestalt processing, in which those features are ignored in favor of faster, but less incisive, processing of wholistic concepts at the expense of detail-oriented analysis (also see Lakoff 1987).

In our "authorities" condition, scientists and engineers had reportedly already pronounced authoritative conclusions concerning alien presence and structures on the white, featureless disk; sociocognitively based Gestalt acceptance of these "expert" conclusions would therefore require relatively little feature-intensive analysis on the part of respondents. So we would expect to see little or no effect of dissociation on interpretation in this condition. People simply didn't do the relevant feature-intensive interpretive processing.

However, in the lunar/planetary condition, our respondents were left without expert opinion to be accepted in a Gestalt manner—they were required to interpret a "lunar or planetary" stimulus *on their own*. Relying on their own intellectual resources for interpretation, those with dissociative tendencies tended to provide more and more outlandish, feature-intensive interpretations; they "saw" more evidence of the alien presence.

But regardless of dissociative tendencies, wouldn't we expect respondents to generate more false interpretations with the sociocognitive backing of "authorities" in science and engineering?

This finding simply did not occur, and its absence brings up somewhat frightening questions: Is it possible that our respondents didn't need authorities to support the false finding of alien influences on other worlds? Do modern people have an effectively Gestalt response to "lunar or planetary objects" that predisposes them to think in terms of science fiction and fantasy rather than science, of Grey Aliens and Klingons rather than orbital dynamics?

If so, we would expect that the removal of the "lunar or planetary" factor would dramatically decrease the number of false color and structural observations. We exposed an addi-

tional thirty-five college student respondents to a condition in which we simply told them they would see "an object," removing all "lunar/planetary" and "authorities" references from the stimulus situation.

Removal of these astronomical references resulted in a dramatic decrease in interpretations, $F(2.95) = 3.96$, $p = .022$. Student-Newman-Keuls analysis ($p<.05$) revealed this was entirely the result of the addition of the "object" condition, which resulted in approximately 5 percent as many interpretations as did the "authorities" or "lunar or planetary object" conditions. These latter two conditions still did not differ significantly.

This result carries with it a sobering fact. Seeing our round white blob as an "object" yielded few false perceptions; however, seeing it as a "planetary or lunar object" yielded the same results as if "authorities" saw the same stimulus object as full of features and structures, or perhaps full of Klingons or little green civil engineers.

Did dissociative tendencies contribute to these bizarre perceptual and cognitive anomalies? Absolutely.

Conclusions

As with our other studies cited here, the demographics of the student population for the present research rendered it reasonably representative of the current American population. These were essentially average people, and it would appear that average people, when confronted with astronomical phenomena, think much more in terms of *Star Trek* than of Neil deGrasse Tyson. As soon as "planetary or lunar" concepts intruded on the given cognitive situation, people were much more likely to think in terms of aliens than of orbital dynamics, of spaceships and star bases than of physics and chemistry. Whether or not "authorities" had seen evidence of aliens on a given object in space, people were perfectly likely to generate the relevant science fiction/fantasy concepts, on a Gestalt basis, on their own.

The implications here are obvious and disturbing to those of us who prefer scientific and skeptical thought. These results indicate that people confronted with a lunar or planetary object are much more likely to associate it with science fiction than with science fact, without recourse to the admittedly complex realities of astronomy. Confronted with problems of planetary scope, most people don't think about physics; they think about Darth Vader.

These results are consistent with the hypothesis driving this research, the idea that cognitive processes, configured by sociocognitive and dissociative factors, determine to a great degree the average person's perception and understanding of scientific and pseudoscientific phenomena. The canals of Mars did not exist—*but we can make them* in the minds of respondents to carefully crafted experimental stimuli.

These results very strongly support the importance of education of the type advocated by the Committee for Skeptical Inquiry. As a modern culture (and species), we are desperately in need of better education in the sciences, including those sciences that deal predominantly with planetary and astronomical realities. In the absence of such education, this research indicates that the average person is likely to start thinking about Vulcans or Captain Kirk whenever the word *planet* is mentioned. These findings bode poorly for an increasingly science-intensive future, unless we as a society can begin to turn more toward fact at the expense of fantasy. ■

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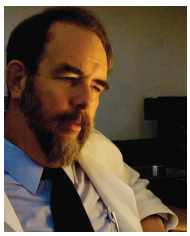

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Do Cosmetic Consumers Really Know What Ingredients They Are Using? An Inquiry into the Search for the 'Truth'

Do cosmetic consumers truly understand the ingredients listed on the labels of the products they use?

JAMES V. GRUBER

Reprinted from EuroCosmetics.

This article examines the question whether, in the age of easy access to information, cosmetic consumers truly understand what the ingredients are that are listed on the labels of their products. It examines certain specific cases where ingredients are a concern and explores more deeply the science behind these ingredients and methods to search for deeper understanding of the ingredients and their safety and efficacy.

Introduction

Recently, at an excellent seminar on cosmetic formulating, which was attended by several experts in the industry, I heard someone say that "Consumers are more knowledgeable than ever about what ingredients they are looking for and applying." This was not the first time I had heard this statement. These things usually percolate for some time before they gel and if you are lucky, an epiphany occurs. Sometime later, such a moment occurred for me.

It is true that consumers have access to significantly more information than ever before. The World Wide Web allows for instantaneous access to information on all manner of topics. The plethora of information available on cosmetic ingredients is no exception. Yet, it occurred to me that even with all the access available, many consumers still believe that sulfate-containing surfactants are cancer-suspect agents. They also believe that paraben preservatives may also be cancer-suspect agents. These beliefs are not restricted to cosmetics alone. They believe that vaccines lead to autism and they believe that untested natural remedies are superior to drugs that have passed through clinical studies.

The principal problem in the existence of such belief systems lies comfortably in the fact that, in many cases, the studies that suggested possible problems (like sulfate surfactants cause cancer) are complex, nuanced, and rarely read. Even reputable resources like the National Geographic Society are not opposed to publishing books dedicated to clinically untested Herbal Remedies (Nature's Best Remedies 2015).

This article addresses some of the ideas around what the consumer really knows, and poses the question: "are they taking the time to understand ingredients and claims?" With all the information available to them, are consumers competent, fully informed experts, that enable them to thoroughly assess "windows" of information generated by reading glimpses of information through untrained minds which, I propose, can still result in differing opinions even among credible experts.

With the above foundation in mind, I will take a deeper cut at understanding these belief systems and their impact on consumers. While the thought process is applicable to many areas, I chose to focus principally on ingredients used in cosmetics but will also touch on herbal remedies and nutraceuticals as well.

The Science Behind Sulfate Surfactants

The Google Search . . . .

Like any normal consumer, I will typically start a search of a topic with a quick keyword search on Google, Google Scholar, or Bing. These databases provide a powerful source of information, at a very quick glance, and in view of the increasing ability for metadata analysis, have become some of the world's most sophisticated ad-generating sources.

Any search is only as good as the keywords used to conduct it. I have heard that sometimes consumers confuse *sulfate surfactants* with *sulfate*, period. So, something like sodium sulfate and any sulfate containing surfactant gets caught up

in the hype, and the consumer may reject a product simply because it has the word *sulfate* in the ingredient summary.

A search for something like *sulfate surfactants* and *cancer* can start easily with a search of "Sulfate Surfactants and Cancer." In Google Scholar, those key words provide about 78,000 responses in 0.07 seconds. The sheer magnitude of responses must indicate there is something going on … right? Clearly, few of us have time to review all 78,000 responses, so we must focus the search a little more. Being scientifically trained, I often tighten up a search by looking at reviews first. My keywords then become "Sulfate Surfactants and Cancer and Review." This doesn't help much; the search goes to 50,000 items which is still too much. I tighten it even more. "Sodium Lauryl Sulfate and Cancer." Here again, the search provides 62,000 items in 0.03 seconds; impressive but not helpful! So, I try "Sodium Lauryl Sulfate and Cancer and Review" and obtain 31,000 hits in 0.12 seconds.

What becomes immediately clear is that the longer the search takes the more likely I am getting closer to my true desired search target. But 31,000 hits are still far too many for the average consumer—let alone a trained scientist—to review quickly. Right away we start to see that, maybe, the average consumer isn't getting all the details. And the devil, it is said, is in the details. What makes the "simple" search I have proposed more difficult is the name *sodium lauryl sulfate* is a common name for *sodium dodecyl sulfate*. The typical consumer likely wouldn't know this and so right away will foreseeably be missing important details in their search.

PubMed: A Deeper Search Approach

For studies of a biological nature, like the impact of sulfate surfactants on cancer, a very powerful search engine is the U.S. Government's biomedical literature database called PubMed. This search engine has no fee, and houses 28 million citations that can be searched with strategic keywords. In my first attempt, I use the keywords *sodium lauryl sulfate* and *cancer* and I set the surfactant terms in quotation marks, so the search engine recognizes only the exact word matches for the surfactant name. This search then provides thirty-three scientific references which is significantly more manageable than what I was finding in Google Scholar. Using the same thinking process and path I used for my Google search, I then further refined the PubMed search by using the word *review*; and then I find something more useful. A single paper by W.F. Bergfeld et al., titled "Safety of Ingredients used in Cosmetics" that was published in 2005 in the highly cited *Journal of the American Academy of Dermatology* appears as the only reference (Bergfeld et al. 2005). This is clearly something that will likely help me start an even more significant search. But how many consumers know to use PubMed, or how to refine keywords to get to something meaningful to answer their fears of the question: "Does sodium lauryl sulfate cause cancer?"

The title "The Final Report" provides a certain sense of confidence that nothing found after 1983 might change assessments of the safety of sodium lauryl sulfate. But the nature of the scientific method requires that claims constantly be challenged and updated.

The Cosmetic Ingredient Review (CIR)

Very significant in the abstract of Bergfeld's paper is the fact that mention is made to papers published in the *Cosmetic Ingredient Review*. The *CIR* is effectively the primary source

of important safety data on ingredients used in cosmetics, and a review of the safety around sodium lauryl sulfate (SLS) was published in 1983 and is called "The Final Report" (Elder 1983). The title provides a certain sense of confidence that nothing found after 1983 might change assessments of the safety of sodium lauryl sulfate. But the nature of the scientific method requires that claims constantly be challenged and updated. My thoughts immediately go to what does the average consumer know about the scientific method anyway? In fact, this question opens the door to another: "Can the typical, non-scientific consumer really make a professional judgement from this search protocol I have been describing?" Personally, I think not … . And that is true of many searches done on many areas of interest both within the cosmetic ingredient field and far beyond its purview.

In 2015, Bondi et al. published a good review of the safety of SLS and noted that suggestions of SLS being a potential carcinogen are "egregious" and are likely due to "misinterpretation of the scientific literature" (Bondi et al. 2015). Fair enough that the scientific literature might get misinterpreted or misused by folks for certain marketing claims—but what is the consumer to understand if he or she will not take the time to read the *CIR*'s review or solid scientific papers like Bondi's? To the consumer it is likely much easier to assume others know better and to seek products that are "sulfate free," regardless of what that means to their health.

Bondi suggests that there is "no scientific evidence supporting that sodium lauryl sulfate is a carcinogen." Published in 2015, that seems like a solid statement of fact and should, one might argue, put that concern to rest. Nope. The claim of "sulfate free" is everywhere and only growing more popular by the day. Don't believe me? Google search "Sulfate Free" and then click on "Images" and see what pops up. It's almost overwhelming. There's even the classic red circle with a slash through it with the word "sulfate" blocked out that appears on some products. Either the consumer doesn't understand the science of SLS or they simply don't care. That is the dichotomy of the personal care industry. As I have stated earlier, consumers will not, and should not be expected to, understand the science. Yet in this age of easily searched "information," this information is not that helpful at getting to the truth.

The science on the correlation between asbestos and mesothelioma is solid. The science on the correlation between talc and mesothelioma is nonexistent. But the fact that some talc is known to contain some possible asbestos contamination was sufficient to convince a jury that the baby product was responsible for the person's disease and the company needs to pay.

The Confusion Around Talc

In 2015, the Cosmetic Ingredient Review Expert Panel published their findings on the safety of talc and its use in cosmetics (Fiume et al. 2015). Their conclusion was "… talc is safe for use in cosmetics in the present practices of use and concentration." Very recently, in a trial in New Jersey, manufacturer Johnson and Johnson (J&J) lost a verdict that talc used in their baby products caused a person to develop mesothelioma, a lung disease associated most commonly with asbestos (Raymond 2018). J&J argued that their talc did not contain asbestos, and more that it would be difficult to inhale quantities that would cause such problems. They argued as well that the person may have been exposed to asbestos in other areas such as piping in the school where the person worked. Regardless, the jury found J&J guilty, and they were ordered to pay $37 million in actual damages which increased to $67 million with punitive damages.

The science on the correlation between *asbestos* and mesothelioma is solid. The science on the correlation between *talc* and mesothelioma is nonexistent. But the fact that some talc is known to contain some possible asbestos contamination was sufficient to convince a jury that the baby product was responsible for the person's disease and the company needs to pay.

While I don't know what the consumer *should* believe, I can tell you what they *will* believe. They won't take the time to read the CIR Final Report on talc or appreciate the nuanced scientific argument that some talc might contain asbestos, but most does not and is safe to use. What they will read is the headline suggesting that baby powder causes mesothelioma, end of story.

Bilberry and Cardiovascular and Skin Health

In the National Geographic Society book referenced above, one can find on page 42 reference to "Bilberry; A Blue Clue to Cardiovascular Health." Bilberry is related to blueberries and the fruit is known to contain "anthocyanosides, plant pigments that act as powerful antioxidants in the body." The article suggests that "Researchers have found that these compounds may help prevent heart disease, oxidative stress, and inflammation." What the article fails to provide is any references to the research suggested. As an informed consumer, I would need to go and search this myself. So, I did.

Again, going to a scientifically rigorous search engine like PubMed and searching *bilberry* and *cardiovascular*, PubMed provides forty-seven references to scientific studies on this topic. The first reference by Habanova et al. published in 2016 is particularly interesting and informative and does reference clinical work on men and women that indicates that ingestion of bilberries has a positive influence on certain targets of cardiovascular health (Habanova et al. 2016). But what appears to be missing in the literature on bilberries is a study that shows that folks who ate a diet rich in bilberries for a long time were able to avoid potential cardiovascular events more than a control group who did not eat bilberries or blueberries or any other anthocyanoside-containing fruits. Does a diet of bilberries help reduce the possibility of a person suffering a cardiac episode? Who knows? But, as a typical consumer, all I need to see is that the National Geographic Society says it might be so and that is probably good enough for me to believe it.

In the cosmetic industry we can see this kind of loose scientific support quite frequently. The correlations between antioxidants and free radical control, and inflammation and aging are growing. But, would a cosmetic product containing vaccinium myrtillus extract (bilberry extract) help slow down the skin's aging processes? Would the information help people using such a product, containing only the fruit extract, over an extended period (i.e., years), show significant skin aging improvements compared to folks who used a placebo skin cream without antioxidants at all? These kinds of robust, long-term clinical studies are remote.

Cosmetic Ingredient Safety and Efficacy: Yeast Extracts

Many consumers may not be familiar with the way that cosmetic ingredient names are developed. The consumer's knowledge that ingredient manufacturers submit ingredients to the Personal Care Product Council (PCPC) to obtain an International Nomenclature Cosmetic Ingredient (INCI) name is probably not that interesting or familiar (Personal Care Products Council Website). For the industry that creates ingredients, and for the informed consumer, the PCPC website is a treasure chest of useful information on cosmetics including product safety data. Many consumers may also turn to websites such as those of the Environmental Working Group (EWG) to find information, particularly safety discussions, about ingredients (Environmental Working Group Website).

As a scientist who has worked for many years developing yeast extracts, I can say with some certainty that yeast is an amazing source of unique skin ingredients.

How About Ingredient Labels?

The ingredient label on the back of a product can be confusing to most consumers. For example, a common ingredient found in many cosmetics is yeast extract. Most consumers would know yeast to mean Baker's Yeast or possibly more scientifically as *Sacchromyces cerevesia*. But, what does yeast extract mean to the consumer? What is a yeast extract? How is the yeast extracted? Is it living, growing yeast that are extracted or the more commonly found Baker's Yeast which is a dormant kind of yeast? The Environmental Working Group unhelpfully defines a yeast extract as "an extract of yeast." Because it is based on yeast that humans have ingested since our distant ancestors crawled from caves, it is likely quite safe.

But what does a yeast extract do to a person's skin? It is scientifically well known that yeast share many of the same lipid components that human skin does. But does an aqueous extract of yeast cells carry any of these lipid components? Could an aqueous extract carry some water-soluble precursors that might stimulate the skin's lipid construction? Does an aqueous yeast extract possibly contain proteins and peptides that might function to improve the skin? It is difficult for a scientist to know the answers here, much less to provide useful information for a somewhat uninformed consumer. A consumer would turn over a bottle and see *yeast extract* and likely pass right over the name, looking for something that they know they do not want to see in the product, like parabens. The consumer places a tremendous amount of confidence in the product manufacturer that the addition of yeast extract does something meaningful to their skin at the concentrations expected.

It is said that the dosage makes the toxin. The same could likely be said for cosmetics and nutraceuticals.

As a scientist who has worked for many years developing yeast extracts, I can say with some certainty that yeast is an amazing source of unique skin ingredients. Yeasts build lipids within their cell walls that are identical in most ways to human lipids (components like squalene and lanosterol). I know this, but how would a person picking up a jar of cosmetics and examining the INCI name on the box understand this? Does the consumer really know what they are using? I would argue in most cases they do not. It might be argued that the consumer prioritizes as follows: brand name > product fragrance > product feel > product claims > product afterfeel > product INCI listing. The fact that the typical consumer might start with a trusted brand name can make it very difficult for a smaller, emerging, innovative brand to succeed. Thus, the reason that claims like "sulfate-free" typically develop with smaller, niche brands before they migrate to the larger brands. In a way, the industry can become its own worst enemy.

Of course, yeast extract might be only one of numerous ingredients that appear on the label of a cosmetic product. The more significant challenge is that while I know and understand that yeast can provide beneficial properties to skin, I have no idea what the multitude of ingredients in a finished product might be doing. Usually, a good skin cream contains ingredients to grow skin, to moisturize it, to exfoliate it, to reduce oxidative stress and protect it against environmental assault, and most importantly to make it smell nice and feel great. How all these ingredients, comingled into a single product work in harmony—or not—is an even greater challenge to the industry. The FDA defines a cosmetic as being effectively paint for the skin, not really gaining access to the viable skin cells. But even water applied to the skin likely finds its way to the viable epidermis, so questions of efficacy must also deal with questions of penetration. It is said that the dosage makes the toxin. The same could likely be said for cosmetics and nutraceuticals. And because the labels don't define concentrations, the consumer is left to assume they are getting a "prescriptible" useful dosage of each ingredient. Again, does the consumer really know what they are looking for and applying?

Conclusions

The argument that consumers are spending their time truly understanding what the ingredients in the cosmetics are doing for them is likely flawed. I do not believe that consumers spend the time to search and understand what the ingredients they are applying are doing for their skin. They expect results and a certain quality of experience that comes with a cosmetic purchase. The onus resides with the industry and more importantly with the ingredient manufacturers to make sure that adequate testing is being completed to support claims about safety and efficacy. ■

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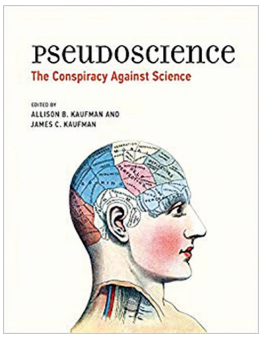
The Advocates of Pseudoscience Are Not Monsters—but Pseudoscience Is

Stefano Bigliardi



Pseudoscience: The Conspiracy against Science. Allison B. Kaufman and James C. Kaufman (eds.), MIT Press, 2018. ISBN: 9780262037426. 536 pp. Paperback, $34.95.

The new book *Pseudoscience: The Conspiracy against Science* includes twenty-two essays organized in six sections touching upon, respectively, the basics of pseudoscience, the costs of pseudoscience for society, scientific soundness, pseudoscience in the mainstream, and science activism. The sixth section consists of a single chapter by Paul Joseph Barnett and James C. Kaufman. For reasons of space, I can briefly mention only a few of the most remarkable contributions.

In the chapter titled "Food-o-science Pseudoscience: The Weapons and Tactics in the War on Crop Biotechnology," Kevin M. Folta discusses in detail the fallacies of those who absurdly malign genetic engineering in a world in which no fruit or vegetable can be consistently called "natural."

In "An Inside Look at Naturopathic Medicine: A Whistleblower's Deconstruction of Its Core Principles," Britt Marie Hermes shares her experience as a "licensed naturopath." Naturopaths believe that a "force" called *vis* can restore health if activated through "natural remedies." They use antiquated/discredited methods yet strive for inclusion in the field of scientific medicine. Hermes dissects the "beautifully packaged nonsense" that she herself used and describes the moral dilemmas she faced when confronted with conditions beyond her competence that threatened the patient's life.

In "Scientific Failure as a Public Good; Illustrating the Process of Science and Its Contrast with Pseudoscience," Chad Orzel discusses two cases of failure on behalf of major scientific institutions: the 2011 announcement that neutrinos seemingly moved faster than light and the 2014 claim that evidence had been found of primordial space-time ripples predicted by inflationary cosmology. In the first case, the experiment was influenced by a malfunction; in the second case, the effect of foreground dust on the signal had been underestimated. Orzel emphasizes that the debate over such cases was conducted over professional channels and that the process resulted in self-correction. Although these are not success stories, they can still be taken as illustrating "science at its best" (254).

The debate over cases of failure on behalf of major scientific institutions was conducted over professional channels, and the process resulted in self-correction.

In "Scientific Soundness and the Problem of Predatory Journals," Jeffrey Beall examines the proliferation of pseudo-journals that, trying to generate as much revenue as possible, never turn down articles and also meet the needs of sloppy and ambitious "researchers" who want to easily inflate their publication lists. His pessimistic conclusion is that because such factors and practices are so ingrained and widespread, junk science and science proper have started to mingle.

In "'Integrative' Medicine: Integrating Quackery with Science-Based Medicine," David H. Gorski scrutinizes the spread of complementary and alternative medicine (CAM) and the infiltration of pseudoscience in academic medicine, or "quackademic medicine." At least two U.S. government entities fund such enterprises: the National Center for Complementary and Integrative Health and the Office of Cancer Complementary and Alternative Medicine (OCCAM, "the most inappropriate acronym ever," points out Gorski, 314). Supporting CAM, observes Gorski, dis-

credits the rigorous application of scientific trials and subjects patients to interventions without probability of a positive result.

In "'HIV Does Not Cause AIDS': A Journey into AIDS Denialism," Seth C. Kalichman examines AIDS deniers' tactics, such as cherry picking genuine scientific papers or moving the goalposts (i.e., demanding a piece of evidence and then claiming that it is not enough), and follows individual stories, including one of a denialist who ignored her own HIV diagnosis until she died of the untreated infection; meanwhile, she had transmitted it to her daughter, who died of AIDS-related pneumonia (a death that the woman wrongly attributed to antibiotics).

In the final chapter, Barnett and Kaufman remark that pseudoscientific beliefs have been flourishing because of the idea that "everybody has the right not to be offended" (467). Change, they suggest, is possible, yet "directly challenging followers of pseudoscience is not simply ineffective. It focuses on the symptoms instead of the disease" (475). One should promote scientific literacy and critical thinking. In their opinion, giving up on the battle against the "hydra" of pseudoscience is not an option; it is possible to keep engaging against pseudoscience in a nonconfrontational way even in everyday life, when one for instance faces coworkers who support homeopathy.

Kaufman and Kaufman's collection tackles pseudoscience from multiple angles, including the viewpoint of whistleblowers and insiders but also experts in cognitive sciences and educators. It is an invaluable toolbox for all those who are interested in understanding pseudoscience and in addressing it critically in the classroom as well as in informal conversation. The collection makes it clear how pseudoscience and antiscience are not just adversaries in a "battle of words" of sorts but constitute a threat to *health*. No contribution slips into a naive overpraise of science. The advocates of pseudoscience are never "otherized" but understood in depth without adopting a patronizing attitude.

My only critical remark is that the collection almost exclusively focuses on American/Western culture: a broader, intercultural perspective may have been instrumental in revealing how pseudoscience, despite appearing in cultural or religion-specific garb, invariably displays the same fallacies: consider creationism, widespread both in Christian and Islamic garb, or "cupping," a form of bloodletting that is claimed to be traditionally Muslim by Muslims or Chinese by Chinese people. I am convinced that the exposure of how cultural specificity is an illusion can deprive pseudoscience of much of its appeal. ■

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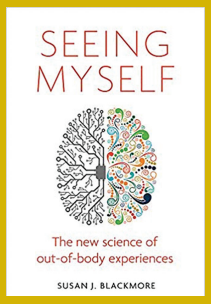
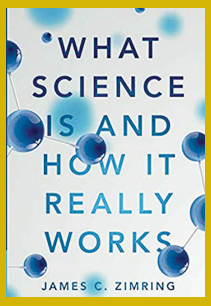
NEW AND NOTABLE]

Listing does not preclude future review.

NORTH CAROLINA GHOST LIGHTS AND LEGENDS. Charles F. Gritzner. Gritzner—a geography professor, prolific author, and longtime "spook lights" investigator—turns his sights to various "unexplained" luminescent phenomena in North Carolina. These are not UFOs but instead various odd lights in the sky that blink, dance, float, and shine. Some are described as "balls of fire," while others are a more classic hazy glow associated with, for example, a will-o-the-wisp. Over the course of seven chapters, "Fritz" Gritzner examines dozens of these ghost lights through the lenses of folklore, history, science, and of course skeptical (that is, answer-seeking instead of mystery-mongering) investigation. The book offers detailed directions so that intrepid ghost light investigators can visit many of the areas themselves. Reports of ghost lights are common in books about mysteries and hauntings, but rarely are the topics given such substantive research. Blair Publications, 2019, 192 pp., $15.95.



SEEING MYSELF: The New Science of Out-of-Body Experiences. Susan J. Blackmore. When she was nineteen, Susan Blackmore had a profound "out-of-body" experience (OBE), floating above herself and feeling a oneness with the universe. She became a parapsychologist, then eventually left the field when she found it provided no answers. Yet OBEs are very common. She has spent most of her career as a psychologist doing research to understand these seemingly profound experiences and to come to a full set of natural explanations. The details have now fallen into place, she says, "even the strangest and most disturbing of them." A noted skeptic, Blackmore nevertheless writes with a deep sympathy and understanding for those affected by such experiences. This is the first American publication of a book published in Great Britain in 2017. Robinson Psychology/Little, Brown, 2019, 356 pp., $26.99.

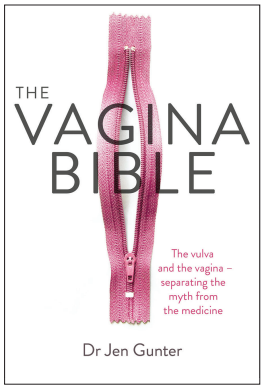


WHAT SCIENCE IS AND HOW IT REALLY WORKS. James C. Zimring. How can nonscientists judge the findings of science? How can they distinguish valid scientific claims from all manner of flim-flam and fluff? Zimring, a professor at the University of Virginia, seeks with this book to help lay people, students of science, and professional scientists understand and explain how science works, the strengths and weaknesses of scientific thinking, and the extents and limits of scientific knowledge claims. As a scientist himself, he sees science as "a terribly flawed enterprise," but says that admission "should not distract us from the fact that science is fundamentally different from other approaches to the world, that science can be defined and demarcated from nonscience and the pseudoscience that wraps itself in the cloak of scientific experience." Cambridge University Press, 2019, 394 pp., £19.99

—Kendrick Frazier and Benjamin Radford

An Owner's Manual for the Vagina

HARRIET HALL



The Vagina Bible: The Vulva and the Vagina—Separating the Myth from the Medicine. Jen Gunter, MD. New York: Citadel/Kensington Books, 2019. ISBN: 978-080653931. 432 pp. Paperback, $18.95.

Considering that half the population has one, the vagina has been plagued by an inordinate amount of myth and misinformation. There are many reasons. Prudery inhibits public discussion of anything having to do with sex, women are embarrassed to talk about their private parts, patriarchal attitudes still prevail, religions have taught that women are inferior, most doctors have traditionally been men, and the vagina has been thought of as unclean. Dr. Jen Gunter has done women everywhere a great service by writing *The Vagina Bible: The Vulva and the Vagina—Separating the Myth from the Medicine* to set the record straight. Her declared "vagenda" is "for every woman to be empowered with accurate information about the vagina and vulva." She is the perfect person to write such a book. She has a wealth of clinical experience, with thirty-three years in medicine and twenty-four years practicing gynecology. She is a gifted communicator with a long and successful career writing about medical matters. She is frank, unashamed, and generous about sharing details of her personal experiences, such as the time she embarrassed herself by putting a condom on a man inside out. And her sense of humor shines through.

I am not a gynecologist, but gynecology was a big part of my practice as a family physician; I couldn't begin to guess how many vaginas I've peered into and palpated. I thought I knew about vaginas, but reading this book taught me much that I didn't know. I discovered that a lot of what I thought I knew was wrong. I learned a lot, and I'm sure the average woman would learn even more. The book is not only educational but also entertaining, fun, and conveniently organized into easy-to-read short chapters. Each chapter ends with a "Bottom Line" summary of the important points. As an additional bonus, the book provides an education in science, critical thinking, and evaluating medical claims.

In ten sections and forty-seven chapters, *The Vagina Bible* covers cleansing, menstrual products, douching, lubrication, menopause, sexually transmitted infections, pubic lice, yeast, probiotics, toxic shock syndrome, and much more. It covers everything women want to know plus everything they didn't know they needed to know about their vaginas.

Here's a sample of some of the book's intriguing facts:

- Men are tested for prostate-specific antigen (PSA), but did you know women have PSA too? They secrete a small amount from their Skene's glands, which are analogous to the male prostate.
- The clitoris is the only body structure in either sex whose only function is to produce sexual pleasure.
- After female genital mutilation (FGM), some women are still able to have orgasms.
- Transgender men have ten times greater risk of an abnormal Pap smear than cisgender women.
- The G-spot is a myth.
- A penis is not the most reliable way to achieve female orgasm.
- The commonly used stool softener Docusate is ineffective; no study has shown it works.
- Changes in libido, sexual priorities, and satisfaction can occur after childbirth—but they also happen to gay men who adopt babies.
- The bivalve vaginal speculum was invented by a woman.
- White cotton underwear doesn't protect against yeast infections.
- There is no anti-candida diet.
- People worry that chemicals such as BPA are endocrine disruptors, but many plants are endocrine

disruptors, including lavender and marijuana.
- Gwyneth Paltrow is wrong: jade eggs for the vagina are bogus.
- Douching and vaginal cleansing are unnecessary and can be harmful. Vaginal washing with soap increases the risk of HIV transmission by almost four times. One vaginal cleansing product has a "wonderful tropical scent." Gunter snarks, "It's a vagina, not a piña colada."
- You can't get pubic lice on your scalp hair, but you can get them on eyebrows, eyelashes, armpits, chest hair, and beards.
- About toxic shock syndrome (TSS) and superabsorbent tampons: "I tried Rely when I was fourteen years old, and the tampon absorbed so much blood that getting it out was like giving birth to a giant Peach!"
- There are products to make menstrual sex less messy, but she relies on her old standby: a navy-blue towel.
- Topical estrogens are safe. The FDA requires black box warnings about heart disease, cancer, and dementia, but these were based on an older study that showed a small risk with systemic estrogens.
- *Bioidentical* is a marketing term with no medical meaning.
- Vaginal cannabis products are untested.
- Seventy percent of women who think they have a vaginal infection are wrong.
- Thirty percent of antibiotic prescriptions are unnecessary.
- Probiotics are big business, but they are useless for healthy people. One study showed they delayed the return of healthy gut bacteria after antibiotics.
- "Well, it can't hurt to try it" is bad advice.
- Surgically reducing the labia should be considered exactly the same thing as surgically reducing the size of the penis.
- Eighty percent of women who have ever had sex with a man will have had at least one sexually transmitted infection (STI).
- Pubic hair removal involves microtrauma and increases the risk of HPV and precancer of the vulva.
- Regarding unnecessary tests, "If the test is not going to change the plan, don't order it."
- Human papillomavirus (HPV) can persist on sex toys, even after cleaning.
- About 80 percent of people who are positive for herpes don't know it.
- Screening for gonorrhea and chlamydia is essential; untreated infections have serious consequences.
- The "yeast-industrial complex" disseminates much false information: "Do I have a systemic yeast infection? Not if you are reading this book." You would be very ill and in the hospital—maybe in intensive care.
- Symptoms suggestive of urinary tract infection indicate a bladder infection only about half the time.
- Cranberry juice doesn't prevent bladder infections, nor does emptying the bladder after sex.
- Phenazopyridine, an over-the-counter bladder pain relief remedy, is safe to use for more than the recommended three-day limit.
- It's silly to test your vaginal microbiome; it changes from day to day and even throughout the day.
- Douches are "cigarettes for your vagina." Don't use them.
- Don't use feminine odor anything: "that is choice patriarchy."

Dr. Gunter asks, "Why do we have a hymen?" and offers some possible answers. She gives valuable instructions to help a young girl insert a tampon for the first time. She says myths abound, but "Fortunately I have the antidote. Facts." She is a breath of fresh air.

There is a whole chapter on how to find valid information on the internet, how to identify reliable websites, and how to detect bias. Avoid websites that sell products or offer advice from celebrities. Watch for made-up concepts such as detox. Avoid any website that mentions homeopathy as a valid treatment. Don't rely on testimonials. There is a chapter on old wives' tales, debunking myths about apple cider vinegar, coffee enemas, drinking eight glasses of water a day, essential oils, alkaline water, kava, garlic, widespread yeast, vaginal tightening sticks, tea tree oil, and much more.

She says a full discussion of hormone replacement is beyond the scope of this book and says perhaps her next book should be *The Menopause Bible*. I hope she will go on to write that and maybe *The Pregnancy Bible* and other OB/Gyn related books.

Surgically reducing the labia should be considered exactly the same thing as surgically reducing the size of the penis.

The book concludes with "The patriarchy and snake oil have had a good run, but I'm done with how they negatively affect and weaponize women's health. So I am not going to stop swinging my bat until everyone has the tools to be an empowered patient and those who seek to subjugate women by keeping them from facts about their bodies have shut up and taken a seat in the back of class. That's my vagenda." It is a worthy goal indeed.

This book is an owner's manual for the vagina that also offers an education in skeptical thinking about medical matters. I wish every girl and woman everywhere had a copy of this book. I can't thank you enough, Jen, for creating this invaluable reference. I feel smarter now, thanks to you. ■

"SkeptDoc" Harriet Hall, MD, is a retired family physician and SI contributing editor and columnist.

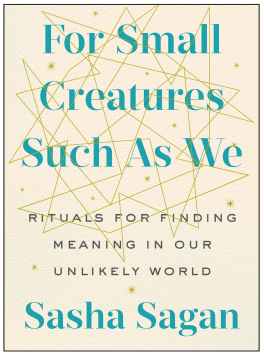
Finding Science and Wonder, Making Meaning

RUTH FRAZIER

Sasha Sagan has written a book for turbulent times. It's for believers, those of us who are nonbelievers, and for those in-between. Its evocative title, *For Small Creatures Such as We*, came from her parents' only work of fiction, the novel *Contact*. Sasha Sagan's parents, Carl Sagan and Ann Druyan, gave her a childhood rich in both science and meaning. And her parents were true collaborators. In fact, Sagan notes that although her title phrase (the rest of it reads, "the vastness is bearable only through love") gets attributed to Carl, "It's my mom who actually came up with those words, which have served as a perfect crystallization of our family's philosophy."

The details of each of her parents' historic religious backgrounds as Orthodox Jews and how they came to secular, evidence-based beliefs is a wonderful read. Carl told his devout father, Harry, that he no longer believed, and Harry responded: "The only sin would be to pretend." Yet Sagan relates that being Jewish is so much more than just religion; it is history and culture intertwined. Modern DNA tests can reveal that she is Ashkenazi Jew, for example, but no such test reveals you to be Presbyterian.

Sagan's own process of learning to think critically came at her parents' knees when she was urged to believe that which was true, and true not because one wished it to be so but because of evidence. And as she grew older, the evidence litmus test was the scientific method.



For Small Creatures Such as We: Finding Wonder and Meaning in Our Unlikely World. By Sasha Sagan. G.P. Putnam's Sons, 2019. ISBN 978-0-735-21877-2. 274 pp., $26.00.

Sasha Sagan has written a book for turbulent times. It's for believers, those of us who are nonbelievers, and for those in-between.

"They taught me that science wasn't just a set of facts to be compared and contrasted with other philosophies, but a way of testing ideas to see which ones stand up to scrutiny," she writes.

> Growing up in our home there was no conflict between science and spirituality. My parents taught me that nature as revealed by science was a source of great, stirring pleasure. Logic, evidence, and proof did not detract from the feeling that something was transcendent—quite the opposite ... . My parents taught me that the provable, tangible, verifiable things were sacred ... .

The essence of her book surrounds the need for rituals and celebrations that put us into community to celebrate life. (And science itself, she writes, "is the source of so much insight worthy of ecstatic celebration.") She is emphatic that life itself is a true miracle, considering all the opportunities not to meet, not to fall in love. Sagan makes us stop and think that life has existed for millions of years before us and will be here, it is to be hoped, for millions of years after us. We have, if we are very lucky, a blink of eighty to a hundred years to live.

So how are we going to do just that? She gives marvelous examples from many global communities from the Hopi in the Southwest to the Maasai of Africa of rituals and celebrations. Yet, Sagan notes, most ceremonies on earth come from either biology or astronomy: life passages such as birth and death, planting or harvest times, religious ceremonies based on the position of heavenly bodies.

Even the universal celebration of

spring begins with a discussion of the science of the tilted earth, the disaster that tipped us and created the rituals, worldwide, to welcome the spring equinox. Sagan writes of a created ritual her mother made for her, "Blossom Day," to examine closely, as winter faded, the dogwood tree outside their dining room window, watching for the first bud and, then, an indisputable blossom. A tea party ensued, gifts were exchanged, but to Sagan, the biggest gift was that celebrations can be created.

Perhaps the best parts of the book are Sagan's descriptions of life with her famous parents, and then Carl Sagan's death in 1996, when Sagan was just fourteen. A ritual at bedtime when Sagan was small was to tell her parents, "Don't forget—don't die." Her mother would promise; her father would say, "I'll do my best." And as Carl was dying he said to his daughter, "I'm sorry," which she didn't understand at the time, but came to realize Carl knew that her and her brother's lives would be forever shaped by his untimely, and out of the natural sequence, death. Sagan chose not to read her father's books until she listened to them as audiobooks, and she says it was as though he was speaking just to her.

Sagan gives universal examples of the rituals of all our lives: the seasons, anniversaries and birthdays, weddings, coming of age (and menstruation), sex, and funerals. By doing so she emphasizes our need as *Homo sapiens* to connect, to celebrate, and to make sense of rites of passage.

There is a moving story of taking her small daughter to visit Carl's burial place in Ithaca. Sagan uses the Jewish tradition of placing a small stone on his grave and is comforted by all the "notes, marbles, Legos, mini planets, and other space-related objects. Seeing this makes me happy. My grief is soothed by knowing other people miss him, remember him, and love him still now." And she writes, "Of all the turning points in life, death begs most for ritual. Many of these are elaborate, but the simplest ones sometimes carry the most weight."

A life without connections for us humans would ring rather hollow. Sasha Sagan's book gives both import to, and lessons for, connecting. Because of her excellent global examples, the world feels a bit smaller, a better place to be. Whether or not you know or like Carl Sagan or watched the first *Cosmos* series that he and his wife Ann created or the second one (2014) that Druyan produced after his death (a second season is forthcoming), this book has messages that resonate. And if you would go tomorrow to put a rock on Carl's grave to connect with others who miss him, this book will delight. ■

Ruth Frazier is a former nonprofit executive who is active in the International Women's Forum. She has long been associated with the Committee for Skeptical Inquiry and the Center for Inquiry.

[LETTERS TO THE EDITOR

The Claims of Parapsychology

I found the reasoning in the article "Why Parapsychological Claims Cannot Be True" (Reber and Alcock, July/August 2019) disturbingly flawed.

The first priority of a serious scientist studying parapsychology is to determine whether such phenomena actually occur—here I mean phenomena such as psychokinesis, telepathy, retrocognition, precognition, and clairvoyance. Only once they are proven to occur is it time to look for explanations. However disappointingly for generations of parapsychologists, no proof has been forthcoming. This means either that parapsychological phenomena do not exist, that incorrect methodology has been used, or that parapsychological phenomena are very different indeed to those proposed. The authors of this article apply a disturbing *post hoc* reasoning to the absence of proof for parapsychology by invoking phenomena such as causality, time's arrow, thermodynamics, and the inverse square law to retrospectively "prove" such phenomena cannot exist.

Such retrospective arguments are suspect. For example, the "inverse square law" does not apply to phenomena such as quantum entanglement. I am sure there are many other exceptions to these four arguments.

Nonetheless, one fact does remain: More than 140 years of serious scientific study reveal the bankrupt reality of parapsychological claims for the existence of phenomena such as psychokinesis, telepathy, retrocognition, precognition, and clairvoyance. Whether other phenomena exist, I do not know, but it is best to keep an open mind.

G.M. Woerlee
Leiden, the Netherlands

It is disturbing when skeptics are proud of refusing to look at evidence while parapsychologists insist on doing so. This has been a persistent issue between skeptics and parapsychologists. As long ago as 1999, skeptic Marcello Truzzi observed "parapsychologists really want to play the game by the proper statistical rules … they thought they could convince those sceptics but the sceptics keep raising the goal posts …" (see "Parapsychology, Anomalies, Science, Skepticism, and CSICOP," http://blavatskyarchives.com/zeteticism.htm).

Skeptics hide behind the slogan "extraordinary claims require extraordinary evidence," which sounds clever but isn't actually true unless extraordinary evidence just means evidence of the extraordinary. All it would take to prove the reality of the Loch Ness monster would be to produce the body of one, which would be ordinary evidence of

any other animal.

Parapsychological research is frustrating. It typically produces weak but sometimes statistically significant findings, there is no plausible theoretical rationale for most of its claims, and its claims often contradict well-accepted scientific theories. The methodological issues it raises are not unusual; many of the most accepted psychological findings have failed replication. But to say that it "cannot be true" sounds more like religious fundamentalism than scientific skepticism.

If readers would like to read more about this troubling history, I have posted my paper (with Ben Goertzel) "Skeptical Responses to Psi Research" at http://crab.rutgers.edu/~goertzel/SkepticalResponses.pdf.

Ted Goertzel
Camden, New Jersey
(Goertzel is a retired professor of sociology at Rutger's University. He wrote "The Conspiracy Meme" in the January/February 2011 Skeptical Inquirer.)

Words such as *cannot* and *impossible* should act as warning sirens for readers of Skeptical Inquirer. Except in axiomatic systems, such as mathematics, it is virtually impossible to establish that something does not exist. Arguments that purport to show that something does not exist frequently contain unstated, sometimes erroneous, assumptions. This is true of the discussion of telepathy and the inverse square law in "Why Parapsychological Claims Cannot Be True."

The authors state, "In telepathy, the distance between the two linked persons is never reported to be a factor, a claim that violates the principle that signal strength falls off with the square of the distance traveled." This statement is based on the erroneous unstated assumption that the intensity of an emitted quantity must follow the inverse-square law. For a counterexample, consider the light reflected by a parabolic mirror that originates from a point-source at the mirror's focus. The intensity of this light does not follow the inverse-square law, because the light is in parallel rays. In fact, the intensity of the light does not change with distance if the mirror is idealized to be in a vacuum.

I do not claim that telepathy exists. My only claim is that the authors' argument involving the inverse-square law is inadequate to show that telepathy does not exist.

Roger McCann
via email

I certainly do not keep up with parapsychology research, and I was frankly surprised to hear that it is still ongoing considering its failure to show anything we could call knowledge. One thing I would point out is that our several sense organs and receptors connect to the brain, but the brain is itself not a sense organ. If it were in the few who claim psychokinesis, ESP, mind reading, etc., it would be present in us all. Evolution would not produce such abilities (if they were of any value) in only a very few individuals.

As for the use of the more bizarre hypotheses in physics to argue for their existence, we should keep in mind that few of these ideas are supported by actual empirical evidence. Some are supported by complex math, but math is not a science. It is rather a very useful set of ideas that we invented. As Neil deGrasse Tyson wrote: "Mathematics is the purest product of logical thinking—a creation of the human mind."

David Zeigler
Wimberley, Texas

Arthur Reber and James Alcock reply:

We appreciate the thoughtfulness of the responses to our article on the impossibility of psi. All, to one extent or another, object to our conclusion that the claims of parapsychologists "cannot be true." However, all failed to notice that our claim was made on the premise and understanding that the rest of science is correct. Our argument isn't, as Goertzel says, "more like religious fundamentalism than scientific skepticism." It is, in fact, a simple statement concerning the coherency of fundamental principles of science that apply across domains.

We understand that many scientists may take umbrage at our declaration about the impossibility of psi. And yet, such offense is not taken when a scientist declares that perpetual motion machines are impossible, that accelerating a body to speeds greater than that of light is impossible, and that water cannot retain a "memory" of a substance that has been diluted out of existence. "Impossibility" is a hallmark of science.

As for our claim that examining the data is irrelevant: if something cannot be true, then any empirical suggestion that it is must be based on poor methodology, improper data analysis, statistical anomalies, or, sadly, fraud. Like all scientists, however, we're open to any replicable demonstration that a new form of mental energy exists that would force a change in modern scientific theory. However, no such demonstration is in the offing, and, until then, the existing data base is not useful.

Both McCann and Woerlee maintain that quantum entanglement violates the inverse-square law (ISL). It doesn't because there is no transmission of energy between the particles. They are simply "entangled." McCann's point about the coordinated light from a parabolic mirror violating the ISL is based on a theoretical model. No such mirror has been built, and it is unlikely that it can be.

Goertzel's point about "extraordinary evidence," which he has argued elsewhere, misses the point. This principle derives from Hume's Dictum on Miracles and is considered a fundamental heuristic in the philosophy of science. Such evidence can be empirically simple—but simple can be extraordinary. Scales exist that can measure the weight of a single molecule. Moving the balance on one with one's mind would satisfy Hume—and us. Such an outcome, however, has not been observed. What we have observed is a century and a half of failure to find anything.

Lastly, we wish to make clear that it was not irrational for researchers in the late nineteenth century to seek evidence of psi. However, given what we now know about how the world and the brain works, and in light of 150 years of parapsychological research that has established nothing, it is irrational today.

Conspiracy Theories

I would like to add my layman observations to Joseph Uscinski's interesting article on belief in conspiracy theories (July/August 2019). I think it is important to distinguish between two main types of conspiracy theorists: the individual type and the in-group type.

The individual type is nonselective, embracing a wide variety of conspiracy theories, even when they are contradictory. They include both political and apolitical theories. The tendency arises from a core personality trait whose severity depends on the person's position on the paranoid-thinking continuum, ranging from mildly suspicious to seeing malevolent intention behind everything that happens.

By contrast, the in-group type is very selective, embracing only those conspiracy theories that negatively portray the opposition in the political and cultural wars. The tendency arises from in-group thinking and affiliation, and its severity depends on the degree of perceived threat to the group.

The distinction is important for purposes of remedy. The individual type can benefit from a course of therapy designed to reduce paranoid thinking. The in-group type can benefit from therapy that reduces fealty to in-group thinking and lowers the perception of threat level.

The common thread, unfortunately, is that neither type perceives an ailment in need of remedy, so neither seeks one.

The situation reminds me of "The Country of the Blind," a short story by H.G. Wells in which a tribe of sightless people determine that the vision of a sighted stranger is a disability that must be corrected.

Richard Babyak
Parma, Ohio

The article presumes conspiracy theorists are gullible people seeking simplistic answers to complex questions. But conspiracy is actually constant and ubiquitous. Human beings are social apes whose hyper-sophisticated communications facilitate more elaborate and effective alliance and deception than in other smart social animals—today even over great distances without "breathing together" as in the root meaning of "conspire."

All around us, people conspire to bend public policy toward their private interests and against human beings, other animals, and the living world; to foment war under false pretenses; to have people eat harmful products, purchase toxic substances, pay excessive medical costs, vote against their interests, and tolerate injustice. Conspiracy denial cripples the public's ability to reckon with such endeavors.

The greater public service is to reveal conspiracies with far-reaching consequences. It takes a lot of work, but as your article suggests, there is a market for it.

David Cantor
Glenside, Pennsylvania

Joseph Uscinski doesn't seem to allow for the fact that one may believe a particular conspiracy theory simply because there is good evidence to do so. Do I "fall victim" to a conspiracy theory if I think it's likely that "Tom Brady conspired to deflate his footballs to cheat?" If so, the NFL apparently also fell victim as they suspended Brady for four games for doing just that.

Ken Clark
Kent, Washington

Although most of us have some knowledge of conspiracy theories, we do not have a precise understanding of what they are, and Joseph Uscinski does not provide us with a clear definition. If a legislature votes an increase in taxes that hits my economic social group harder than others, may I consider this a conspiracy against my group?

David W. Briggs
Marion, Massachusetts

Joseph Uscinski replies:

Words don't have intrinsic meanings; they have usages. Here is how I use the following terms in this context. Conspiracy *refers to a small group of powerful people acting in secret for their own benefit and against the common good in a way that undermines bedrock ground rules or commits widespread fraud. We know a conspiracy occurred when the appropriate expert bodies analyze the appropriate evidence and make that evidence available for refutation. A* conspiracy theory *is the suspicion that a conspiracy has taken place; however, that suspicion has not yet been supported by the appropriate epistemological bodies. A conspiracy theory could be true, but until the appropriate experts deem it so, we do not have good reason to believe it. A policy—a tax hike for example—would not be a conspiracy assuming that the law was passed in the open and according to agreed upon procedures.*

Every conspiracy theory (even the ones about interdimensional lizard overlords) has some evidence to support it. And when people believe a conspiracy theory, they think the evidence is on their side. Belief often comes first, and evidence comes later as a rationalization. At the end of the day, any individual's subjective judgment of evidence in favor of a conspiracy theory is nothing more than subjective and therefore influenced by many factors that have nothing to do with evidence. It is well known in the literature that people judge evidence very subjectively: if the evidence supports what they believe, then they consider it better than evidence that does not.

In my article, I never say that conspiracy theorists are gullible or that conspiracy theories are simple explanations to complex phenomena. I don't believe either of these things. Instead, I believe everyone is gullible to some extent but in different ways and that everyone falls victim to conspiracy beliefs from time to time. We all have our biases. Conspiracy theories are sometimes simple but sometimes very complex. So I don't think they are "simple explanations." Indeed, some conspiracy theories turn out to be true, just as some scientific theories turn out to be true. But we don't believe every scientific theory that someone proposes just because some other scientific theories turned out to be true. We wait for the expert consensus on that particular theory. Or else, it's just open game for believing anything. Which brings me to Tom Brady and his deflated balls. What the science tells us is that beliefs in "deflategate" have more to do with one's geography (or more poignantly, their football loyalties) than to an even-handed examination of the evidence.

But then again, maybe I am only saying that because I am a New Englander.

The Opioid Crisis

Dr. Barglow ("Confessions of an American Opium Prescriber," July/August 2019) mentions demand reduction, supply reduction, and harm reduction as three possible intervention strategies for populations. Not mentioned is simply talking (and identifying) with the patient. The importance of people in his essay pales in comparison to the emphasis on supply and demand. I gather this is what his confession to a "failure to sufficiently recognize the individual vulnerabilities of unique patients" refers.

Aristotle said a friend is one soul dwelling in two bodies. No wonder this extrication from the constraints of time, through the psychological process of identification, is so healing in places such as Alcoholics Anonymous. As Carl Jung said, "*spiritus contra spiritum*."

Demand reduction does not have to involve "'behavioral immunity' induced through forcefully enhancing risk aversion through stigmatization." Not only does the stigmatization of stigmatization lead to its recapitulation, but there is much to learn from language. Isn't it remarkable how individuality (associated with toilet training in toddlers) is wiped clean by euphoriants, relieving the user from a feeling of being dirty? Much of addiction slang meaningfully refers to attempts at ego death, for example, "wasted and trashed," to name a few. Twelve-step programs pull the carpet out from under a hatred of individuality, exhorting, "Identify, don't compare," and asking members to keep their first names for anonymous individuality, and to adopt the new last name, "And-I'm-An-Addict," denoting group fellowship and identification.

Space permitting, some corrections are in order. First, tramadol is certainly an opioid, as it binds to the mu-opiate receptor and has opiate agonist effects. Second, heroin was not invented by Heinrich Dreser. Diacetylmorphine was invented in 1874 by the English chemist C.R. Wright. Heinrich Dreser, working at Bayer, facilitated Bayer's production of diacetylmorphine, brand name heroin.

John Jacobs, MD
Manchester, New Hampshire

My years of experience treating pain patients who were on opioids showed many flaws in the system. Most physicians believe they are not the problem, that other doctors are. They are blind to their role in the crisis. But primary care has taught patients that a pill is the answer.

I did not see patients on chronic opiates taking them to "get high," although prescribers say that all the time. Instead, chronic opiate users take them to avoid the dreadful withdrawal symptoms, which are described as a bad case of the flu. Rapid dose decreases or discontinuation from long-term users is cruel and has fueled the heroin and fentanyl epidemics. Once a patient is addicted, personal choice goes out the window. Addiction steals the soul.

Underlying all this is the modern medicine solution that a pill is the answer for everything, fueled by the need to get the patient in and out quickly and feed the greed of the pharmaceutical industry. Healthy lifestyle is the best medicine there is, and solid

interpersonal relationships between patients and health care providers are the best tools to help patients get there.

L. Paul Schneider, PhD, ABPP
Clinical Health Psychologist
Yakima, Washington

I very much enjoyed Dr. Barglow's piece "Confessions of an Opium Prescriber." I thought it offered a thoughtful response to the pressure to severely curtail opiate availability. I would nitpick one minor detail of his account. In particular, Dr. Barglow suggests that the use of addictive drugs doesn't involve much free choice. I agree that it's wrong to think that addicts are somehow weak willed or that people of good character would be able to resist drug use under similar circumstances. However, juxtaposed as it is with a discussion of Libertarian philosophical views on free will, I think Dr. Barglow conflates two potentially different concepts: whether continued drug use is so compelling that no normal individual would resist and whether we should regard the continued use as resulting from the addict's free choice.

Because drug addiction works by way of instilling a strong desire in the addict to consume more drugs (fear of withdrawal, longing for reward of use) and not by imposing some kind of external control, several philosophical theories of free will would conclude that an addict's choice to consume more drugs is made freely.

The nature of free will and what counts as a free choice is a complex and contentious subject (which I'm not an expert in), and I recommend *The Stanford Encyclopedia of Philosophy*'s entry on free will for a more detailed discussion of the various positions. No doubt some accounts of free will would support Dr. Barglow's conclusion, but it is by no means a clear issue even under the assumption that anyone in a similar position would be unable to resist.

Peter Gerdes, PhD
Berkeley, California

I was impressed with this well-researched and thought-out piece until I got to the end. The elephant is still in the room. No definitive conclusion regarding the destructive role of America's War on Drugs. Dr. Barglow certainly has firsthand experience of how better off we would be with treatment instead of incarceration. Can't the experts just say the truth: decriminalize all drugs. Tell us the expected consequences of taking each drug and defer some of that money saved into research so we will know the facts.

Bob Devlin
Volcano, California

Peter Barglow, MD, responds:

Dr. Jacobs corrects my essay on two points. Tramadol, as he states, does contain an opioid (narcotic) that acts against pain. Also, he is right that Wright invented heroin, not Dresser, who facilitated its production by Bayer Corp.

I agree with Dr. Schneider that rapid medication opioid dose reduction sometimes is cruel and often counterproductive. Also higher "doses of pills" often do represent a major health crisis. In Japan, where there is not a drug overdose epidemic, there is 50 percent less opioid prescribing for acute pain than in the United States.

This difference might indeed be explained by the factor of "free will or choice" identified by Dr. Gerdes. I suspect, however, that choice is obliterated by the most severe pain of physical disease or by withdrawal agony.

I agree with Devlin that America's "War on Drugs" has not succeeded. But total decriminalization is not an adequate response. The U.S. Department of Justice indictment of overprescribing doctors, illegal clinics, and pharmacists, and its success in decreasing import of fentanyl from China, probably has had a positive impact on opioid supply reduction. This strategy may partly explain the reduction in drug overdose deaths in the United States from 72,300 to 68,500 between 2017 and 2018, because of decreasing opioid fatalities. *(Source: US Centers for Disease Control and Prevention [CDC] 2019, Statistics. Opioid overdose; Data over-view. Online at https://www.cdc.gov/data/index.html.)*

Two Types of Medicine?

I read Dr. Harriet Hall's article "Science Envy in Alternative Medicine" (July/August 2019) and found her argument biased from a science perspective.

Medicine can be divided in two broad categories: allopathic and nonallopathic. What differentiates the two is that the allopathic model tends to be a reactionary form of medicine reliant on pharmaceutical drugs and intrusive surgery. This is also known as Western medicine. It is hard medicine based on modern laboratory science that does have an impressive record of clinical success. The system, however, is based on the insurance industry's ability to pay untold dollars to cure sickness. Allopathic medicine, and the insurance industry that pays for it, influence our day-to-day lives in pretty much the same way as do law and religion. And they have a vested interest in smothering any alternative medical modalities.

Allopathic medicine (or scientific medicine) is good for trauma, acute bacterial infections, medical and surgical emergencies, etc. Obviously, you can't meditate away a broken leg or a staph infection. But allopathic medicine reverses the order of what a medical system should be. It is not good at preventing sickness in the first place. It puts very little if any emphasis on wellness. The medical/industrial complex we have today is not set up to be preventative, nor is it incentivized to do so.

Enter nonallopathic medicine, or what Dr. Hall calls "alternative medicine." There are numerous nonallopathic modalities; some have been around for centuries but all of them have one thing in common: they concentrate on health and its maintenance rather than on disease or injury and its treatment. For example, I recently went to an acupuncturist because I had a deep and chronic pain in my right shoulder. I thought it might be arthritis or a torn muscle, and the pain kept growing worse and worse. I had a choice: I could have gone to an MD first, but I chose to go to an acupuncturist instead. A one-hour treatment cured my pain, and I have been free of any discomfort since. What do you think an allopathic or science-based doctor would have done? First, X-rays. Then pain medication perhaps followed by surgery.

My argument is not anti-science. It is that there is no incentive in today's medical establishment to study "alternative" modalities or to work toward true wellness. Health is about the whole person and allopathic doctors are not set up to work this way. Our medical system is upside down. It is an allopathic or scientific system more concerned with sublimating the symptom than finding the true cause of the problem. It is a knee-jerk first response to what should be a last resort. The debate should not be between scientific medicine and alternative medicine. Instead, it should be when do we begin to train doctors in alternative or complementary modalities in addition to or in place of their regular practice. I doubt anything will change soon. The science-based model is too profitable.

Eric Lane
San Antonio, Texas

Harriet Hall, MD, replies:

Eric Lane is wrong on all counts. There are not two kinds of medicine. There is only one medicine. The term allopathic *was coined by Samuel Hahnemann to contrast it to his invention, homeopathy. He claimed that homeopaths treat with similars, while mainstream*

doctors' philosophy required treating with opposites. That was never true and is even less true today. The term is meaningless and is used mainly by alternative medicine advocates as a derogatory term for mainstream medicine.

There's no such thing as "Western" medicine. Medicine works the same everywhere on the globe. Wherever you live, there is only medicine that has been tested and proven to work—and medicine that hasn't. The "system" has no vested interest in smothering anything that works. It would enthusiastically adopt any treatment that was supported by good evidence.

Mainstream medicine not only emphasizes prevention, it invented prevention. Think vaccines. Think the U.S. Preventive Services Task Force. Studies have shown that alternative practitioners are demonstrably worse at providing these proven preventive measures, and what they promote as prevention and health maintenance is largely speculative, wishful thinking.

Mainstream medicine has always treated the whole person. Good doctors don't just treat the disease; they treat the person who has the disease. Lane's anecdote belies his claims: he sought treatment for a symptom (shoulder pain), and his acupuncturist addressed the symptom rather than doing anything in the way of health maintenance or prevention. And doctors demonstrably don't just treat symptoms: If a patient is coughing and feverish from a bacterial pneumonia, doctors don't just suppress the symptoms with aspirin and cough syrup; instead they identify the causative organism and treat it with effective antibiotics. For that matter, different alternative medicine practitioners posit many different (bogus) underlying causes, from chiropractic subluxations to disruptions of Qi; their explanations contradict each other and couldn't possibly all be right.

Alternative medicine is big business, and there are plenty of incentives to study it. The same Big Pharma companies make big bucks selling dietary supplements and developing drugs from natural remedies. The National Center for Complementary and Integrative Health has plenty of grant money for alternative medicine research. PubMed lists 13,649 studies on acupuncture alone.

Is Lane suggesting that alternative medicine is not profitable too? Surely his acupuncturist didn't treat him for free. Science-based medicine is not about profits; it's about what works. "When do we begin to train doctors in alternative modalities?" When the modalities are proven to work. But then they will no longer be alternative; they will just be "medicine."

Using a 'Psychic' to Teach

Bob Baugher and Philip Haldeman's article "Teaching College Students Critical Thinking Skills by Posing as a 'Registered Psychic'" (July/August 2019) is very interesting, but I was surprised to see no mention of a similar exercise many years ago described by Barry Singer, former professor of psychology at California State University, Long Beach, in "To Believe or Not to Believe," the first chapter of *Science and the Paranormal: Probing the Existence of the Supernatural*, edited by George O. Abell and Singer (New York: Scribner's, 1981), 21–22 and, more formally, by Victor A. Benassi, Singer, and Craig B. Reynolds in "Occult Belief: Seeing is Believing," *Journal for the Scientific Study of Religion*, 19(4), December 1980, 337–349.

They asked a student to perform simple, amateur magic tricks (some even performable by children!) before six classes of psychology students. He did not call himself a psychic or a magician; he simply performed. Half the classes were told he claimed to be psychic but the professors were skeptical, and half were told that he was an amateur magician using simple trickery.

The results were remarkable. About 80 percent of those in the classes told he claimed to be psychic clearly thought he was. Only a few expressed real skepticism. The experimenters were surprised by the intensity of belief; many gasped, screamed faintly, and were visibly agitated. Their comments were wildly hyperbolic and totally nonskeptical, and about a dozen became seriously disturbed or frightened, recommending exorcism rites and warning against trafficking with Satan.

Even more striking were the reactions of the other classes. The belief rate was, indeed, much lower, but still over 50 percent of those emphatically told that the performer was an amateur magician only pretending to have psychic powers *nonetheless believed he was psychic*, some even saying there was no way his performance was stage magic.

"If our results can be generalized," says Singer, "they indicate that over half the student population will ascribe psychic powers to a vaudeville routine, no matter how amateurish it is and no matter who tells them the truth about it. This strikes me as a remarkable state of affairs." To which I would only add that I would replace *remarkable* with *frightening*.

Ray Ward
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[FEEDBACK

The letters column is a forum on matters raised in previous issues. **Letters should be no longer than 225 words**. Due to the volume of letters we receive, not all can be published. Send letters as email text (not attachments) to letters@skepticalinquirer.org. In the subject line, provide your surname and informative identification, e.g.: "Smith Letter on Jones evolution article." Include your name and address at the end of the letter. You may also mail your letter to the editor to 944 Deer Dr. NE, Albuquerque, NM 87122.

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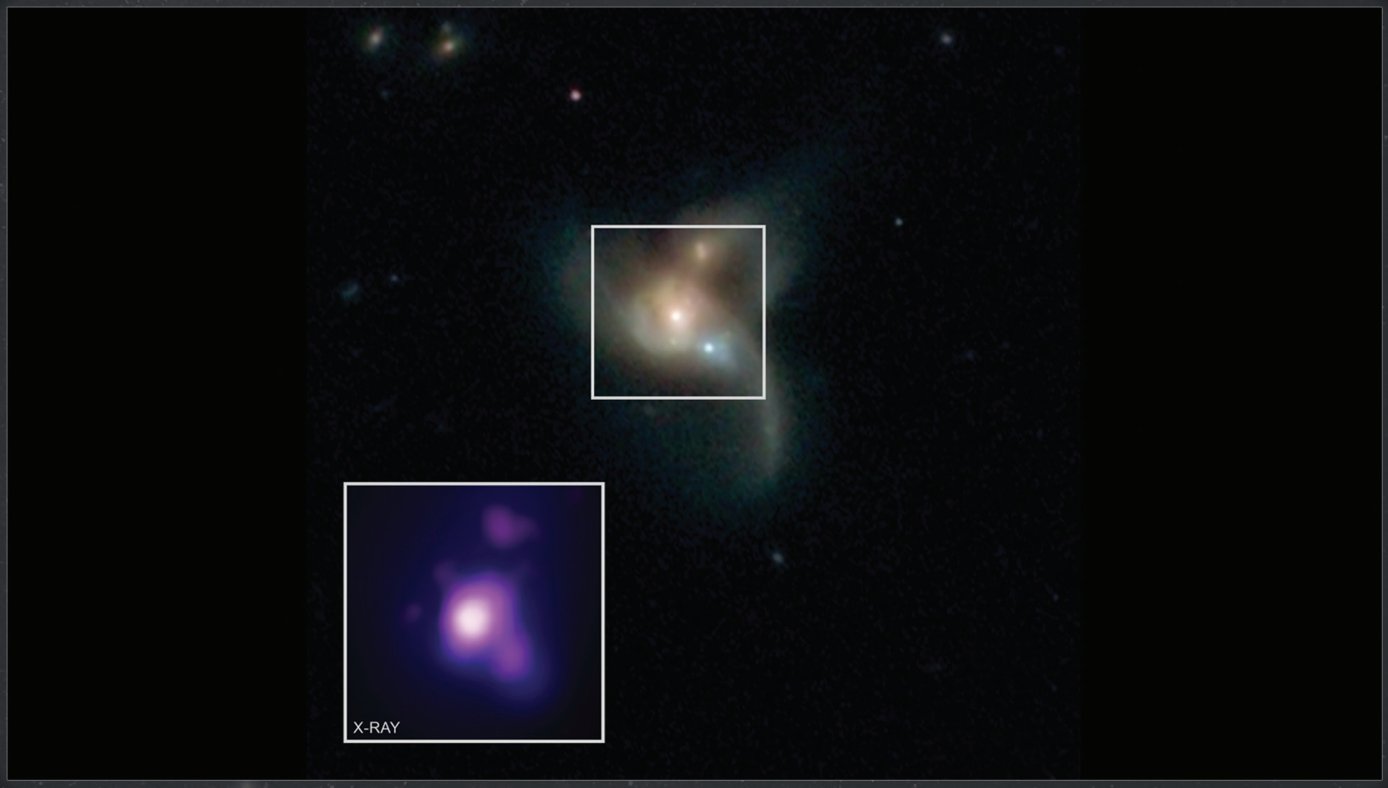
Three Giant Black Holes on Collision Course



Astronomers have spotted three supermassive black holes within a titanic collision of three galaxies. The discovery and this image were both announced by JPL/NASA September 26, 2019. The unusual system was captured by several observatories, including three NASA space telescopes.

"We were only looking for pairs of black holes at the time, and yet, through our selection technique, we stumbled upon this amazing system," said Ryan Pfeifle of George Mason University in Fairfax, Virginia, the first author of a new paper in *The Astrophysical Journal* describing these results. "This is the strongest evidence yet found for such a triple system of actively feeding supermassive black holes."

The system is known as SDSS J0849+1114 and is located a billion light-years from Earth. To uncover this rare black hole trifecta, researchers had to combine data from both ground- and space-based telescopes: First, the Sloan Digital Sky Survey telescope in New Mexico; second, NASA/JPL's Wide-Field Infrared Survey Explorer mission; and third, the orbiting Chandra X-Ray Observatory and the Large Binocular Telescope in Arizona.

Image Credit: X-ray: NASA/CXC/George Mason Univ./R. Pfeifle et al.; Optical: SDSS & NASA/STScI